BOSTON
MEDICAL LIBRARY
8 THE FENWAY

BOSTON MEDICAL
JUN 26 1912
LIBRARY

THE NEW YORK DENTAL JOURNAL.

13323

JANUARY, 1860.

A GLANCE AT THE HISTORY AND PROGRESS OF DENTAL SCIENCE,

FROM THE EARLIEST PERIOD TO THE PRESENT TIME.

(*Continued.*)

Nathaniel Highmore, a physician and anatomist, was born at Fordingbridge, in Hampshire, in 1613, and educated at Trinity College, Oxford. He took his degree of M. D. in 1642, and settled at Sherburne, in Dorsetshire, where he became eminent in the practice of the profession. Highmore was a theorist from necessity, the opportunities for practice in those days being few and far between. In publishing the description of the *Antrum Highmorianum*, he led to the discovery of a disease until then unknown, and to an operation, which was not attempted, however, until fifty years later. He also noticed that the alveolars penetrated into the cavity, and that they were only separated by a thin scale. Highmore published "Corporis Humani Disquisitio Anatomica. Fol., 1651;" "The History of Generation. 8vo., 1651;" "De Hypochondriaca Affectione. 12mo., 1660." He died in 1685.

Pierre Dionis was the inventor of numerous instruments of merit. The last years of the seventeenth century opened a new era for the diseases of the maxillary sinus, and the operations connected with them. Williame Cowper and James Drake proposed to cut the gums through to the pereosteum in difficult dentition, gave the history of many of these affections, and advised perforation of the alveolar as a remedy.

Usually they drew the first molar, pierced the alveolar with any sharp instrument, and followed with injections.

But these improvements did not spread through Europe, and most of the practitioners and writers of the period were as ignorant as their predecessors. To Pierre Fauchard, however, we owe a valuable work upon the science of dentistry, in which, among other bold propositions, he strongly urges the use of the file; he assures his readers that no fears need be had regarding the enamel, for it is harder and stronger than any instrument.

Fauchard recommends the use of this instrument where the teeth are out of place, where they overlap each other, and even in children at the breast, when they are so long as to be inconvenient. He was the first who refuted the old notions of worms in the teeth, for even did they exist, he asserted that they could never produce the pains of odontalgia. Hoerlock, Pierre Guisard, Bunon, and other names well known at this period, all gave evidence that dentistry was at last progressing out of the slough in which it had so long lain stagnant. The old ideas, so long drawbacks to advancement, were now beginning to be exploded; and Cheselden in England, and Garengeot, Westphal and Runge in Europe, led the way to Thomas Berdmore and John Hunter, to whom, more than any other men of the period, dentistry owes her present position. Berdmore did not favor extraction in every case of pain; conceiving that the cause of the trouble, frequently an abscess, could be removed or treated, and the tooth saved. He advised cutting the gums of children at dentition, and the extraction of deciduous teeth, when there was certainty of the approach of the second set. Berdmore was a decided enemy to the use of artificial teeth, and objected to filing, except in aged persons, in whom the nerves had lost their vitality. As we have given an extended notice of the life and works of Hunter in a former number of this journal, we will not refer to him here.

BIBLIOTHECA ODONTALOGICA.

Billard.—Des dents Minérales, ou Considérations génerales sur différentes substances et les différents moyens employés à confectionner les pièces dentaires artificielles. 8vo. Paris, 1851.

Blake.—Disputatio de dentium formatione et structura in homine. 8vo. Edinburgh, 1798.

Delabarre, A. [Dentist.]—Uber die Guttapercha und ihre Verwendung zu Künstlichen Zähnen an Stella der Metallplatten und Knochenunterlagen. 8vo. Berlin, 1852.

Fitch, Samuel S. [Surgeon Dentist.]—A System of Dental Surgery 8vo. New York, 1829.

Gallette, J. F.—Anatomische, Physiologische, etc. 8vo. Mayence, 1813.

Gariot, J. B.—Traité des Maladies de la bouche, d'apres l'état actuel des Connaissances en médicine et en chirurgie, qui comprend la structure et les fonctions de la bouche, l'histoire des maladies des dents, les moyens d'en conserver la santé et la beauté, et les opérations particulières à l'art du dentiste. 8vo. Paris, 1805.

——— Treatise on the Diseases of the Mouth; comprising the structure and functions of the mouth, the history of its diseases, the means of preserving it in beauty and health, and operations appertaining to the dental art. Translated from the French, by J. B. Xavier, D. D. S. 8vo. Baltimore, 1843.

Gehler, Jean Samuel Traug.—De dentitione tertia. 4to. Lipsiæ, 1786.

George, J. B.—Un mot sur le nouveau système de protèse et sur les avantages des dents et dentiers Anglais. 2d edition, 12mo. Paris, 1851.

Gerbaux.—On the Teeth; with observations on the most frequent diseases incidental to the mouth, &c. A popular treatise, addressed to the faculty and heads of families. Translated from the French, by a member of the faculty. 12mo. Edinburgh, 1817.

Gilles, Arnaud.—La Fleur des Remèdes contre le Mal des Dents. 8vo. Paris, 1621.

Giudre, P. J.—Phénomènes et bizarreries de deux dentitions, suivies de quelques observations sur l'irrégularité des dents et sur plusieurs cas difficiles non résolus pour établir parfaitement un dentier artificiel sans essai et sans tâtonnement. 8vo. Nantes, 1852.

Girauldy, A.—L'Art de Conserver des Dents. 8vo. Paris, 1737.

Goddard, Paul B.—The Anatomy, Physiology, and Pathology of the Human Teeth; with the most approved methods of treatment; including operations, and the method of making and setting artificial teeth. Aided by Joseph E. Parker. Thirty plates. 4to. Phila., 1844.

Hebert.—Le Citoyen Dentiste. 12mo. Lyons, 1779.

Hemard, Urbian.—Recherches sur les Dents. 8vo. Lyons, 1582.

Hirsch, Frederick.—Praktische Bemerkungen, etc. 8vo. Jena, 1796.

Hoerlock, Joseph.—Practical Treatise upon Dentitions. 8vo. London, 1742.

Hoffman, Frederick. [An eminent professor of medicine, and Physician to the King of Prussia; born at Halle, in Saxony, 1660, died 1742.]—Treatise on the Teeth, their Diseases and Cure; in which the several operations on the teeth, and such things as are found destructive to them, are particularly considered. From the original Latin. 8vo. London, 1753.

—————— Dissertatio de Dentibus, eorumque morbis. 4to. Halæ, 1689.

Horner, S. S.—The Medical Students' Guide in Extracting Teeth. Post 8vo.

Hunter, John, F. R. S. [For biography of this distinguished man, see vol. 1. No. 1. "New York Dental Journal."]—Born in Lanarkshire, 1728, died 1793. The Natural History of the Human Teeth; explaining their structure, use, formation, growth, and diseases. 4to. London, 1771.

—————— " " " in Dutch. 4to. Dordr., 1773.

—————— Practical Treatise on the Diseases of the Teeth; intended as a supplement to the natural history of those parts. 4to. London, 1778.

VULCANITE RUBBER BASE.

BY DR. B. W. FRANKLIN.

[GENERAL AGENT FOR THE SALE OF OFFICE-RIGHTS, APPARATUS, ETC., 640 BROADWAY NEW YORK.]

The Vulcanite Rubber Base, which has earned for itself a reputation and popularity unparalleled in the history of dental inventions and improvements, is now being regarded by very many of our profession as a permanent institution; the manner of manufacturing this material so as to secure the best results may be of some interest to the numerous readers of your valuable Journal.

Every system, however complicated or simple in its detail and mechanical manipulations, is nevertheless dependent upon certain fixed laws for perfect and uniform results. The more simple and easy of accomplishment, the more likely the operator will be to omit some apparently insignificant thing which in the end defeats the object sought to be attained. Every operation in mechanical dentistry requires skill, experience and application; if none but those possessing these qualifications were engaged in this branch of our profession, it is but reasonable to presume that mankind would call us blessed.

The care with which this work is put up and the superior adaptation to the parts as well as the ease and comfort to the wearer, doubtless are among the causes operating to give the Vulcanite its present popularity.

The difficulties always experienced in the tedious detail of all metal plates, in this work is not experienced. A perfect impression is the first important step in this system. Those who depend upon their old plaster models to fit the plate upon, and plyers, whose "gripe is death," do not succeed with this as well as other kinds of works; after a thin plaster model is obtained from a perfect impression, adapt a thin gutta percha or wax plate to the model the size and form required, and with this get the bite or articulation of the mouth, the same as with a metal plate; arrange the teeth to wax, the same as for other styles of work, being careful to bend the pins in the teeth, to form hooks either downward or sideways as the teeth may require; after the teeth are arranged and the proper expression given, build wax around the teeth as desired: when the Vulcanite is substituted, this process duplicates the wax forms in the most perfect manner. The wax should be smoothed with a warm spatula. Some little pains and test at this stage of the work will save much time in finishing after the work is vulcanized. The model, with the teeth and wax form upon it, is set teeth up in the under side of the flask, and this part of the flask filled with fresh mixed plaster even with the edge, or to a line that will admit of a separation, when the remaining half of the flask is put together. Cut 1, with teeth, represents a case in the lower half of the flask ready for the upper half; we now varnish the plaster and wax with shellac varnish; when dry, oil the varnished surface, then place the upper section of the flask in its place and fill with fresh mixed plaster, being careful to fill every part complete, allowing no air-bubbles in the plaster, and screw the handle around the flask ; after the plaster has sufficiently set, warm the flask and contents to about blood heat, or a little above, and gently separate ; the teeth will be found firmly held in the upper section, with the plate and wax attached ; now carefully remove the plate and wax, cleaning away all adhering wax from around the teeth, and from between the pins, as seen in Cut 2 ; we now set the upper half, containing the teeth, near the fire,

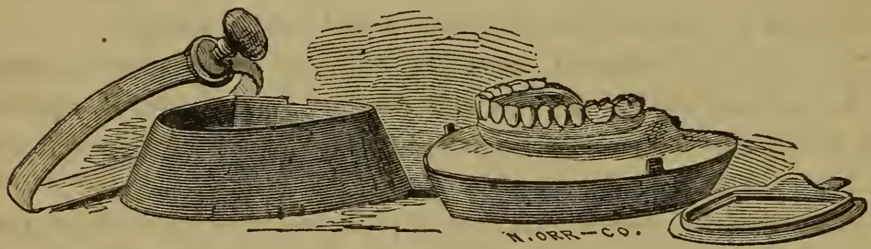


Fig. 1.

and warm it up gently till quite hot ; then pack the gum, slightly softened by heat, into the space occupied by the plate and wax, being careful to use sufficient so as to have a surplus for pressure when the flask is screwed together ; when the packing has been completed, cut a series of grooves in the face of the plaster for the gum, to the outer edge of the flask as seen in Cut 2 ; these grooves permit any surplus gum to escape, when the flask is screwed together ; now gently screw the flask partly down, and set in a warm place for a short time so as

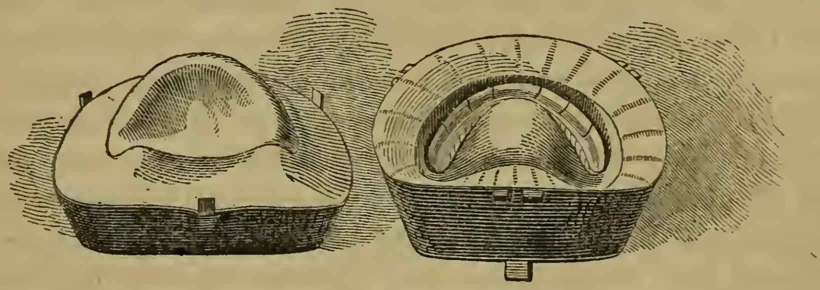


Fig. 2.

to allow the gum to yield under the pressure, as well as to prevent the teeth from being displaced by a too sudden force, starting the screw at short intervals until the parts of the flasks come together ; as a test for the completion of the vulcanizing, twist a little of the gum around the screw outside the flask ; this, in case of any mistake in time or otherwise, will give the operator a correct idea of the condition of the gum inside without opening the flasks; if too little done, it may be replaced in the heater and vulcanized over.

The flask is now placed in the heater with sufficient water to generate steam for three or four hours. The heaters gotten up by various parties for vulcanizing this work display an amount of ingenuity and practicability, seldom if ever called out in any other department of mechanical dentistry. The heaters are of cylindrical form, open at the top, to admit the flask containing the work to be vulcanized, with a cap or cover which is screwed or bolted to the top of the heater; in this cap or cover is a thermometer which indicates the degree of heat, and a safety valve to guard against accidents by explosion; the heaters are made sufficiently strong to sustain from four to six times the pressure required for vulcanizing the work and are constructed of common cast iron, malleable iron, boiler iron, and copper, weighing from twenty to one hundred pounds, and costing from eighteen to thirty-five dollars, and are constructed so as to use coal, gas, or alcohol. After the flask is placed in the heater, the cap is screwed down tight, and if a coal heater, placed over the fire or gas as the case may be; slowly bring up the heat until the thermometer indicates about 310 degrees, at which point keep it as near as possible for three hours; the steam is then let off through the safety valve, the cap is removed, and the flask taken out and allowed to cool down slowly, before being opened. The time required to vulcanize the work may vary a little, in consequence of the variation in the thermometers of different makers, and also the thermometers of the same makers vary a little; every operator will very soon determine what allowance to make for this variation in these instruments. The best results are when the vulcanite presents the consistency of horn, under the scraper; if proper time and heat is employed, it will scrape off in shavings like horn; if too much heat or too long time is given in vulcanizing, it is more dark in color, and less tenacious; to prevent the gum from working between the joints of the teeth, after the wax is removed, as seen in cut 2, fill the joints with dry plaster, and saturate the plaster with liquid silex; this solidifies immediately, and if properly done will prevent any of the material from entering and steaming the joints.

To finish the work we use coarse files and scrapers of various shapes, then fine sand paper or emery cloth, then cork wheels and fine ground pumice stone and water, then cotton wheels, or very fine brush wheels and whiting, or prepared chalk and water. The vulcanite rubber is susceptible of a fine and beautiful polish, and the more perfect it is finished, the less likely it will be to retain minute particles upon its surface ; the vulcanite rubber possesses more strength than any other substance ever used as a base for artificial teeth, as any one can demonstrate by experience : vulcanize samples of the various gums, and then reduce them to one thickness, width, and length, and secure one end in a vice, or in any other convenient manner, and fasten the other end to the beam of a common jeweller's scale, and measure the strength of each ; then take gold, silver, platinum, aluminum, and Blandy's metal, and reduce these to the thickness usually employed, the same length and width of the vulcanized gums, and it will be found that vulcanized rubber possesses three times the strength of the vulcanized gutta percha, six times the strength of Wheet's gum, and eight times that of the amber base ; of the metals, platina coated with a thin coating of body and gum, was over ten times as strong as gold, 19½ stronger than silver, 8¼ stronger than aluminum, 12 times stronger than Blandy's metal. When the metals spring, or set beyond their power to react, we considered their capacity taxed to its utmost practical limits ; practically, those substances which are used in a continuous form in the construction of artificial dentistry are relatively much stronger than when divided up, as in the case of single teeth on metal. The continuous form given to the vulcanizable gums, Blandy's metal, aluminum and continuous gum and platinum, add several hundred per cent. to the aggregate strength of each, besides having the advantage of being comparatively pure in the mouth. Many who are using the vulcanite base do not seem to appreciate the fact that the pins in the teeth are the principal reliance upon which the durability of the work depends. Until quite recently we were compelled to use teeth designed for ordinary work, but the demands for teeth adapted to the vulcanite work having so rapidly increased, the manufacturers have, with commendable promptness, responded to the requirements of the profession, and we now furnish every desirable shade and form of single teeth and block, that are really beautiful and in every respect adapted to this work. The question may be asked by those who have had little or no experience in the vulcanite base, whether it is likely to prove durable, whether it is applicable to partial cases, &c. In answer to the first, we can only say, there are many cases in this city and vicinity, which have been in daily use now over four years, without any perceptible change; and those of the profession who have used it the longest in their practice, have the most confidence in its durability and are adopting it to the exclusion of all other substances. It is believed by many that in partial cases where it is necessary to improve natural teeth, the vulcanite clasp exerts no deleterious influence upon the teeth embraced by it. It is found most convenient for constructing regulating appliances; in short, if there is no objection not yet developed, there can be no doubt but it will prove the most valuable invention ever made in our profession, and will become immediately adopted in this country, as it is fast being in Europe. But some may ask, Is there no objection to the introduction of a substance which is so easily manipulated, and which is calculated to cheapen dental operations? If this be an evil, the profession, so-called, is alone responsible for it; the inventors and holders of the rights under these patents are not, and cannot be, in any manner answerable for the low prices which many are charging for the vulcanite base. The profession, I believe have never complained that the owners of the patents have offered facilities that would naturally reduce the expenses of making good artificial dentures to any less than the difference in the expense of the material used. It is a mistaken idea that many have fallen into, when they suppose that because the expense of materials is cheapened, "Othello's occupation's gone;" on the contrary, if the better part of the profession would recognize the mechanical dentist as requiring a superior order of attainments to practice successfully, it would do much to drive from its ranks the many pretenders who but imperfectly understand its requirements and just in proportion to their lack of skill reduce the price of their productions. The charge of dishonesty can not in truth be laid to them, for I believe all will agree, that they charge all their talents and skill are worth, if not more. The only reason, to my mind, which has operated to cheapen the prices of the vulcanite base, is the course pursued by certain parties anxious to make money for a *brief period* by encouraging infringements upon the rights of others; a portion of the profession who with oft-repeated declarations that they were "down on patents," extended their patronage liberally to said parties, who in return supplied a cheap, and in some instances worthless material, which is the real cause of the present ruinous price for this kind of work. However it is quite as well perhaps that it was so, for now these will realize that it is much easier to reduce prices below a reasonable standard, than to bring them up to a living profit; when they are compelled to pay an honest equivalent for what they use. Most of those holding a license under the American Hard Rubber Co., have maintained respectable prices compared with those who were infringing; nevertheless, in the aggregate, the prices have been below what they should have been for first-class work, and below what it would have been but for the piracies perpetrated.

DENTAL ASSOCIATIONS AND THEIR USES.

About the year 1838, was established the first Dental Association in America. It commenced its existence in the city of New York, under the title of "The N. York Society of Dental Surgeons." This was followed, in 1843, by the "Virginia Dental Society," and thereafter by the following:

Pennsylvania Association of Dental Surgeons; Mississippi Valley Dental Association; Western Dental Society; Vermont Dental Association; North Carolina State Dental Society; Cincinnati Dental Association; Michigan Dental Association; Indiana State Dental Association; Ohio Dental Association; Georgia State Dental Society; St. Louis Dental Society; New York State Dental Association; Connecticut Dental Society; Mad River Valley Dental Association. Thus there are at present sixteen societies for the better education and association of dentists.

The true objects of association are, first, to accomplish the greatest amount of labor with the least expense of individual effort; next, to centralize effort, and by directing all the combined force toward the same end, better secure its accomplishment; finally, by social interchange of thought and opinion, to lead to better judgment and conclusion.

It is a well-known fact that all the great results in history have been accomplished by well-directed united effort. In this connection, we will quote from a distinguished author, who writes as follows: "Old proverbs, though often quoted, and as often misapplied, are, nevertheless, frequently as true as trite; and 'united we stand, divided we' fall,' 'two heads are better than one,' and 'in union is strength, have been, perhaps, more generally applied, practically, to the great business purposes of life, and to more effect, than men dream of. From this silent working lever, have arisen all the great combinations of the world, many of which have failed, but more of which have proved its correctness as a principle, by wonderful and wonder-working success. Can we not trace the idea until we find its source, pure, strong, and fearless, in the institution of the marriage ceremony? Man is a gregarious animal and loves society, and as well in business, in religion, as in pleasure, we find him seeking companionship. Tracing it through ages of varied standards of virtue, intellect, and purpose, we find the same principle exemplifying itself in modes of government, in secret societies, in the dread power of the Inquisition, and, later, in those grand commercial combinations whose deeds have shaken old continents and founded new ones. The 'East India Company,' wielding its power for two centuries, planting its colonies under the burning sun of the Torrid Zone, wresting from the feeble and inefficient hands of the natives the land of their birth, and firmly holding its sway, despite the millions who opposed them, offers a prominent instance. The vast money-power of the Rothschilds, upholding governments and dynasties when they will, and destroying them when they will, still further proves its power. Following the law of association through its various channels, we find it exhibiting its presence and action in Academies of Science, in Philosophical Associations, in Universities, and even in the more simple but yet powerful copartnerships of the various departments of traffic." Thus it will be seen, that whenever any great work was to be done, men got together in numbers, and what single-handed they could have never accomplished, by union was done at once.

To apply these results to our own profession, look abroad upon the Science of Dentistry, and the class of Dentists, and how changed they are from what they were twenty-five years ago. To nothing can we owe the standard to which this profession has reached, but to the associations and their influence. The interchange of thought, the contrasting of character, the metallic ring of mind on mind, have brought forth all new discoveries and wiser applications in all these years.

And another reason should uphold this great principle. When one of our profession shall be assaulted, libelled, accused of crime, and all perhaps unjustly, with how much more power can a great body of noble men stand up and support him. When, a short time ago, a poor man, but regardful of the honor of his profession, boldly resisted some swindling operation upon the public, and expended time, money, and trouble in prosecuting a troublesome suit at law, the American Dental Convention came forward, and recognizing the value of the service rendered to the profession, indemnified that man for his expenditure, was it not an admirable proof of our assertions in this article? and so every year occurrences prove the benefits of our associations, and as we have heretofore used all our influence in encouraging such associations, we have penned this hasty article, and thrown together these few scraps of evidence to strengthen the opinions of those who think as we do, and to change those who disagree with us.

NOTES FOR A MEMOIR ON THE PATHOLOGY OF DENTO-NEURALGIA.

BY A. C. CASTLE, M. D.

Of the many subdivisions into which the general pathology, ætiology, &c., of the various organs of the human anatomy have been divided, none have escaped with so little observation, or met with less investigation, than have the special pathologies of the nervous disorders of the dental organs and those of the ear, with their remote and obscure peculiar phenomena, as we find them presented in the numerous complicated dento-neuralgic affections of the teeth, &c. This fact is not at all surprising, if we pause for a moment and contemplate with what slow and uncertain stages the march of improvement has proceeded in the more demonstrable of art and science. How much of these has been, seemingly, owing to mere chance of an idea, an intuitive thought, rather than to a well-directed investigation! How rarely, if ever, a master has arisen to embody into simple rules or formulæ the often complicated processes and obscure doctrines and theories of those preceding him! Need we, then, be surprised, and shall the science of medicine be abused, at the still slower process of diving into and divining the true cause of occult disease? The little knowledge heretofore possessed, and the limited amount of information hitherto advanced upon the subject of neuralgic disease and affections, their cause, nature, and the treatment indicated therefor and therein, have amounted to nothing in the remotest degree that has tended to offer a guide to their amelioration or cure. The ever-recurring attempts, with here and there a glimmering view of a remote and exciting cause, of offering a pseudo principle without the possession of a single fact or demonstration to explain a baseless fabric of a theory, has been all that has been offered to the dental and medical professions to enlighten them upon the real nature of neuralgic disease of the morbid lesions, exciting and superinducing the various forms and complication falling within the nomenclature of neuralgic affections. So far from throwing any light upon this important and interesting subject, or affording any insight for our government, by which measures to their treatment for their cure are to be adopted, the attempts to elucidate the origin and cause of neuralgic disease has rather tended to render the pathology of these painful affections still more obscure, and thus, like phthisis, rheumatism, and other chronic diseases, offering an additional opprobrium on medical art. It is true that the sciences of anatomy, physiology, and pathology, have been long and zealously employed in the investigation for the elucidation of neuralgic derangements. Unhappily for the sufferer, and unfortunately for the medical and dental professions, the research has thus far bidden defiance to all the efforts of the medical philosopher.

It is with a view of adding to the *not* very extensive stock of information on this subject at present in the possession of medical professors, that I am induced to offer these remarks, and to give my experience from ocular and demonstrative proofs. From the fact that few cases present themselves to, or are met by the medical practitioner, that so often occasion such perplexity, or cause so much vexation and mortification, as do these derangements of peculiar portions of the nervous system classed under the general and not very precise term of "neuralgic affection," it is the object of these papers, to a certain extent, to offer a text or basis upon which the attention and observations of my professional brethren may be engaged, with mine, to elucidate the facts to which I now urgently call their attention, and by *their attention* to enlarge our knowledge, and still further explain the peculiar phenomena regarding dento-neuralgic affections: with this idea cherishing the hope that the pathological descriptions, deductions, illustrations, and correct recorded cases which in the course of these "notes" I shall detail, will not be found uninteresting, uninstructive, or unacceptable; and that, like the advent of anasthetic agents introduced to the medical world, that the dental profession may again have the honor still further of being the origin of ameliorating the sufferings of mankind.

It is much to be regretted that in the United States—than which no other country upon the face of the globe offers so many excellent opportunities, or meets with facilities so preëminent—such advantages should be neglected, lost sight of, or *ignorantly* passed over, when so much good could be done by the study of and attention in the observation how to demonstrate the painful nervous derangements consequent upon dental disease, lesions, disorganizations, and the many symptoms super-excited by unchemical, improper applications in dental mechanisms applied to the mouth, with the many remote symptomatic and sympathetic constitutional irritations dependent upon and superinduced by the abnormal condition of the dental system. Much might have been accomplished in unravelling the occult cause of dento-neuralgia in its idiopathic character—the most simple of all the symptoms of this affection being easily and at once observable; and demonstrating its true character—by the numerous dental practitioners crowding every city and filling every village nook on this wide-spread continent. If the dental profession have failed to observe this almost universal affection among our people, the reason or the truth must be told. It is because so few dentists have received a medical education, and so many—using the broad sense of the term—are without education altogether. We find practising dentistry all sorts of respectable artizans, clerks, &c., of dry-good stores, &c., who, unable to procure a livelihood in their legitimate trades and employments, as a *dernier ressort*, take up the practice of dentistry as "Doctors" and D. D's. This class of the dental profession, by a singular ambition to appear learned in medicine, take this view of the dental organs without any medical knowledge to apply to the vagueness of their physiological, anatomical, and dento-surgical ideas; while, on the other hand, (from the business dollar-making competition in the profession,) the medical educated dentist loses sight of the fact, and dollarly, not professionally, views the teeth as mechanical bodies merely to be manipulated upon to produce so much money per annum. He treats them with "argillaceous tooth scrapers," pine sticks, and "floss silk renovators."

The medical profession justly complain of a certain portion of the clergy who furnish every mountebank charlatan with certificates for diseases cured, diseases that had no other existence than in their own dyspeptic imaginations. So may the well educated medical dentist complain that *medical men* recommend to their patients dentists who are only calculated to illustrate the axiom, *ne sutor ultra crepidam.* Thus we may observe that while the United States furnishes the best educated mechanical dentists, the United States are far outstripped by the education of the foreign dentist, as accurate dental anatomists distinguished for their writings, and for their physiological and dental pathological attainments. It is true we have one or two medical dental schools which offer a brighter ray of dental education in this particular, illumining *our* horizon of dental science. When the *trade* of dentistry becomes more professionally dignified in its character, we may show the world that we have the mental faculties of, and are the equals with, foreign education.

Nosologists have classified neuralgic affections in accordance with those nerves *supposed* to be the seat of pain: thus the *neurálgia facialis*, the "*tic doloreux*," "tic convulsif" of the French, neuralgia pollicis, the *ischias nervosum*, or pain in the branches of the great sciatic nerve, and so on. Now, many of the neuralgic affections of the body, as will be hereafter illustrated, take their origin from the abnormal condition of the dental system, in contradistinction to the mode of nomenclature of neuralgia to the spot or region where pain is experienced. *I have named the affection dento-neuralgia*, from its proximate cause, to wit: *that peculiar state of sub or super-excitement*—"irritation," if the reader please—*of the dental nerves and nervous membranes within the bony tissues of the teeth*, and the morbid state of the nervous exhalated fluid transfused into, or otherwise acted upon by the diseased structure, while traversing, as it were, the capillary tubuli of the teeth. No sooner has this morbid dento-nervous irritation but partially developed itself—which may be known by that peculiar tenderness of the decayed "dentine," (as American writers improperly term the *bone proper* of the teeth,) when subjected to manipulation preparatory for receiving or "filling"—or fully established itself in its own locality, (*one* or more teeth,) than it is sympathetically, and *symptomatically*, extended to other various remote parts of the body, either acute or subacute in its character.

Here, in numerous instances, may be recognized one of the most essential points and rules for a correct diagnosis of many rheums and pains appearing without any apparent exciting cause, but dependent upon and arising from a source entirely overlooked, and little dreamed of in the philosophy of the medical or dental practitioner or student. I could cite innumerable cases where patients, for years, have been subjected to the most harrassing treatments—narcotics, stimulants, emollients, sedatives, irritants, counter-irritants, "nervines!" carbonates, phosphates, acids, iron, arsenic, mercury, phlebotomy, cupping, leeching—drastic, alterative, aperient medicines—cold and warm baths, sea-bathing, electricity, sulphur and vapor baths, the knife, the division, and the excision of *the*? nerve. Then homœpathy, then hydropathy, then mesmerism, and many other isms, clairvoyance, spiritualism, and free love, with all the kindred "sciences," (microscopy excepted,) have stepped in to effect a certain cure; and if the wretched sufferer has had vital forces to endure and withstand these dreadful assaults upon a citadel so fearfully and wonderfully made, it has only been to sink into hopeless melancholy, or into the bitter resignation of despair, In these severe cases the whole mystery of the disease not only has been entirely overlooked, but never even dreamed of; and the tortured sufferers have been *accidentally* relieved from all their troubles by those simple instruments, the extracting key or dental forceps. Now it is an important fact, and melancholy as it is notorious, that the mass of medical practitioners never have devoted their attention to the abnormal conditions of the teeth, consequently they have never thought—unless in suggestive, well-marked cases—of examining and looking into the mouths and teeth of their patients for a diagnostic idex to make out the case in consideration. The medical attendant looks to hereditary predisposition, wounds, bruises, subcutaneous tubercles, irritation of spinal cord, the liver, the heart, the lungs, the kidneys, the membranes of the brain, or some nervous ganglia—all sorts of ideal propositions are ultimately sought after and called up from the mental deep to explain the occult cause; but where do we hear of a physician seeking for the origin of this affection in the teeth, where, five times out of five, the proximate and exciting cause may be found;—and having discovered the origin, does the medical man send his patient to the accomplished medical educated dentist for the case to be *medically* treated *secundum artem?* No. He sends them to some tailor, machinist, dry-goods clerk, or barber's clerk, who has taken up dentistry and an office at the same time, and who has mechanically filled a tooth, or inserted an artificial tooth without charge, as a *diploma* of his professional dental efficiency. This mode does not elevate the profession of either. It is not professional; it is not encouraging to the dental *student proper.* It is resolved into a *business* matter of dollars and cents merely: the sufferers are the victims, while the truly educated, efficient dentist is placed, professionally, *hors du combat.*

Of course this subject of dento-neuralgic affections, to be properly comprehended, studied and treated, requires a thorough knowledge of the anatomy, physiology, pathology of the whole dental system in its connection with the nervous system, not the profound *theories* of boldness of *speculation* of a multiplicity of teachers or boards of examiners, who may be more anxious to see their names spread over the Union attached to *di*-plomas, than to illuminate the subject they examine applicants for "honors" upon. Unfortunately, multitudes of diplomas, like multitudes of words, do not enlarge our boundaries of knowledge; abstract theories, and still more abstract dental examinations, however ingeniously contrived, are rarely more substantial than the pasteboard architecture of our childhood. Then the errors, broadly expressed, that hitherto have characterized *our* dental literature, we find a grand attempt to be learnedly profound, some writers swimming far beyond their depth, and suddenly winding up their efforts with mental cramps, with inexplicable or unmeaning pathology, based upon their own *ideal* abstract speculations, without any explanations of conditions in the dental family, conditions so marked and adverse that, whilst one person is enabled to triturate glass with his teeth with impunity, another is subjected to exquisite agony by the mere touch of a quill tooth-pick.

In vain I have consulted medical and medico-dental literature upon the subject of dento-neuralgic affections. Harris' Dictionary of Dental Science, with all the accomplished author's vast research, gives the chief opinions of different writers to the definition of *Odontalgia.* Mr. Thomas Bell says, "It not unfrequently happens that parts the most remote become the apparent seat of pain from the *exposure* of the nerve of a tooth." Dr. Good says "that *neuralgia* is often an idiopathic affection dependent upon a peculiar irritation, from a cause we cannot trace. But," continues the doctor, "it is more frequently a disease of sympathy, produced by pregnancy or chronic rheumatism, or acrimony of the stomach." Dr. Wood refers to odontalgic affections (my dento-neuralgia) only where the disease is marked by pain in the teeth at the same time. My old friend Dr. Thomas E. Bond, professor of special pathology and therapeutics, in his "Treatise on Dental Medicine as connected with the study of Dental Surgery," under the head of *neuralgia* pertinently remarks, "The term neuralgia is not precise, but it is sufficient for practical distinction. It is not certain," he says, "whether the seat of the disease is in the *neurilemma* or in the nervous pulp." He then proceeds with much truth: "It will be perceived at once that the dentist must often be called upon to discriminate between this disease and ordinary toothache, and unless he be properly informed upon these subjects, he may add to the terrible sufferings of his too confident patient." Dr. B. continues: "In most cases the neuralgia of the nerves of the jaw is at first mistaken for toothache, and frequently ignorant dentists have extracted tooth after tooth, and have at last relinquished the patient to his aggravated sufferings." Dr. Bond then says, "From toothache depending upon exposed nerves, it may be diagnosed by the evident centralization of the pain in a certain tooth, by the aggravation of it when the tooth in fault is touched, and by the positive evidence of a cavity in the tooth with an exquisitely sensitive pulp exposed." It needs no ghost to tell the dental profession this. We want to know what we don't know. Dr. Bond truly remarks, "We must not expect philosophical definitions in medicine."

J. E. Snodgrass, M. D., speaks of neuralgia under the head of "Dental Irritation," p. 141, American Journal of Dental Science, A. D. 1841, who relates the death of his father, of phrenitis, superinduced "from a general odontalgic affection, in which a number of his teeth *participated*." The symptoms were of the severest nature—"lockjaw," "drumming in the ears," "ear-ache," "swimming in the head," "deep-seated, benumbed pain, delirium." "He continued in this state," continues Dr. Snodgrass, "for several hours, and then sank into a somewhat soporific state, characterized by what I have since recognized as coma," (lethargic or comotose state). Dr. Snodgrass speculates upon the "main questions," "the modes in which the inflammation originally seated in the teeth," (which, by the way, does not appear,) "was conducted to the auditory apparatus, and next to the brain and its coverings." Dr. Snodgrass singularly concludes, "But, if we had any doubts on this score, the *nervous* connections between these parts need merely be alluded to, in order to render the *inference* clear that phrenitis and sudden death (of his father) were the results of a simple (!) odontalgia. The nerves, if distributed to the teeth and ear, have a common origin in branches of the *fifth pair of nerves*, while the immediate nervous relation of the auditory apparatus with the cerebral *mass* and its great covering, the *dura mater*, is strikingly apparent."

I do not wish to disturb Dr. S.'s knowledge of relative anatomy, or himself as an anatomist, or his deductions so "strikingly apparent." These, however, are all the speculative ideas I have been able to glean on this subject, with one or two published "extraordinary cases" of neuralgia disappearing after the extraction of a tooth.

It will be the object of these papers to exhibit the true pathology and symptomatic and sympathetic symptoms of dento-neuralgia; that this distressing complaint is almost invariably treated improperly for neuralgia of the part where the pain is experienced. I offer these remarks to the *medical profession* with great deference, hoping that my "unpretending notes" may be accepted as a slight contribution towards a more accurate pathology of this branch of neuralgic disease, that they may be of some value and service in assisting the diagnosis of the medical practitioner in these interesting cases. The belief that the medical practitioner will award justice to my remarks, has had special influence upon my mind in offering these notes, and expending considerable money for their illustration. For I may be permitted to say, that I have seen enough to convince me that instances often occur in practice in which medical attendants have been placed in a rather uncomfortable predicament, in consequence of the absence of knowledge, or the contempt for a matter (diseases of the teeth) which he may, very erroneously, have been in the habit of regarding beneath his attention or unworthy of his professional notice.

To the educated, enlightened, those who dignify the profession of dentistry, I respectfully offer these notes, asking their especial attention, as co-laborers with me in the field of dental science, to elucidate this most vital and interesting portion of medical dentistry, dental surgery, and medicine science; by the aid of whose services I feel assured that the dental profession can claim the honor of originality, and a sisterhood, hand in hand relation, with the science of medicine and its observers in the great divine action of healing the sick.

ARRANGEMENT OF ARTIFICIAL TEETH.

E. B. LARCHAR.

The mechanical part of dentistry, I am obliged to say, has been viewed by many of the profession in a light little less than menial, and the mechanical dentist a secondary individual, to fill up the gap between the barber who pulls teeth and the surgeon dentist who fills them. Now, why is this? why should those who enjoy great reputations for filling teeth assume a position so commanding, in all our dental conventions, as to almost exclude the mechanical part from an expression? Does it require more skill to fill than to fit teeth? If so, I am answered. Nevertheless, I am still of opinion there is some dentist in a mechanical operator. So, to that portion of the body of professionals, I will venture a few remarks, which may be appreciated.

To obtain an elevated position in any of the walks of life, it is highly important to understand thoroughly all the details of a business which you have adopted. Mechanical dentistry combines many requirements in order to be successful, and these requirements present a wide range of art, varied and various as the number of cases committed to your care. When I speak of art, I refer to it, in one way, as a painter does a picture,—that of arrangement, form and color; in another way, adaptation, fitting, and manner of adjusting all parts to make one harmonious whole. It is one thing to throw together a set of teeth, and quite another thing to make a set answering in every way the purposes for which it was formed. In order to accomplish a piece of work properly, we must mark well our impression, for upon its nicety depends the whole construction of our work. If we build our foundation in a sure and proper manner, our structure will stand the test of time. Too many operators, knowing that this taking an impression is a most disagreeable one for the patient, often use the first one obtained, in order to get rid of this annoyance. Now, it may be a fair *fac simile* when in plaster, and it may be otherwise, but in most cases it is a failure, on account of an improper cup, or an unsuccessful working of plaster, wax, &c. Hence, I say, obtain a good impression, for it is better that the patient should endure a little longer, and we obtain a good result, than to have a failure in the end, with a loss of reputation beside. In arranging teeth, let them be selected with taste and good judgment—taste in color, form and size. Artistically speaking, this portion of the work brings out the beauties and develops to the patient your far-seeing judgment in giving to him a piece of work calculated to give satisfaction in use and good expression to the features. This expression of features is one of the most difficult to design, and yet, when completed with care and attention, gives the greatest satisfaction both to the patient and to the operator. It is a self-evident fact that the arch must be contracted after the loss of its many members; hence, it is a fair conclusion that the teeth to be inserted should be somewhat proportional to that contraction, in order to construct a well-balanced case, and give a proper articulation. Large teeth, in the majority of cases, look massive—presenting a broad front for remark and observation. I would rather err upon the other side than give to view so much of my dental capacity. Slight irregularity in arranging gives grace, ease and beauty to the denture, does away with the hardness of outline, producing an expression more natural and life-like than when situated in rows of even line-like procession.

Always endeavor to arrange teeth so that in articulating the force will be applied upon the inside of the arch, instead of outside; this adaptation I consider the most important in the successful working of a mechanical piece.

The form of teeth should be governed by the shape of features and peculiar origin of the patient. The classification is as distinct in this matter as the different types of mankind. Some may differ with me on this point, but I have arrived at this conclusion by careful observation. The selection of the color of teeth is of great importance. Often milky white teeth are inserted when the patient is fifty or sixty years of age, thereby making a prominent sign-board, pointing to the "spot where good *artificial teeth* are got." This bad taste condemns the dentist, also makes the patient an object of ridicule. Please the patient when it can be done, but never sacrifice your judgment to pocket the dollars. These few hints I have given in order to arrest, if possible, the hasty making up of artificial dentures, and if these few lines will be conducive of elevating our branch of the profession, I shall be richly compensated for the effort.

RANULA.

BY WM. H. LOVEJOY, M. D.

The term *ranula* is applied to a disease having its seat in the *ductus Whartonii.* It usually manifests itself in the form of a tumor, of variable size and consistency, on either side of the *frænum linguæ,* in the *mylo-hyoidean region.* It is of rare occurrence, and usually observed within the meridian period of life; females are said to be most obnoxious to this affection.

Different views are entertained in regard to its pathology; some suppose it to be merely a cystic formation between the *mucous laminæ,* while others contend that it is dilatation of the *Whartonian duct,* ultimating from an obstruction in that organ, and I think the latter is its correct pathological history, since these tumors almost universally contain a fluid having the properties, physical and chemical, of saliva, and, on delicate dissection, they will be found continuous with the *duct* of the *submaxillary gland.*

The etiology of ranula is rather obscure, but can frequently be traced to some contiguous irritation or inflammation, (as *alveolar periostitis,* or *buccal cellulitis.*) which, extending to the mucous membrane of the duct, produces, as a sequence, stricture, and consequently obstruction.

The diagnosis of this affection is seldom equivocal, its peculiar locality and physical characteristics always determine its nature. Ranula seldom undergoes spontaneous cure, unless, attaining a large size, it bursts of itself, and, after a long period, heals. The only radical treatment of this affection is operation; the entire anterior wall of the diseased mass should be excised, and the wound cauterized, which usually heals in from eight to twelve days. The passage of a seton through its parietes, in order to induce contraction, is frequently practised by some, but with little success; this latter method has, in my experience and observation, proved entirely futile.

CASE OF REMOVAL OF HALF OF THE LOWER JAW.

BY J. MASON WARREN, M. D.

[Read before the Boston Society for Medical Improvement.]

James W., fifty-six years of age, applied to me in the early part of September, 1859, for a tumor about the size of a hen's egg, occupying the angle and horizontal part of the right side of the lower jaw. The disease had commenced twelve years previously, with a numbness in the jaw, followed by swelling; it went on gradually for two or three years, during which the three posterior teeth were removed. About three years since the pain became excessive, when an opening was made into it with a lancet, and a discharge of fluid took place, attended with considerable relief.

When he presented himself, the outlines of the jaw had disappeared, and the place was occupied by a smooth, round, shell-like tumor, which extended from the canine tooth backward, rising a little upon the ramus of the jaw. The tumor projected inward, pressing upon the tongue, lifting up the palate, and obstructing about one-third of the aperture of the posterior fauces. The health of the patient was pretty good, and the principal inconvenience given to him by the tumor arose from the obstruction to deglutition, and the affection of the voice; it was also the seat of more or less uneasiness. The disease thus far did not seem to have broken out, and invaded the soft parts.

There appeared, therefore, to be no question as to the propriety of its removal by operation; the only doubt was, whether to remove the jaw at the articulation, or saw off the bone just below. As it was doubtful, however, whether the disease might not extend out of sight nearly up to the articulation, as it appeared to do on looking at it from within the mouth, added to the advice given by some distinguished surgeons, that it is always better to remove the bone at the articulation, on account of the remaining portion being dragged forward by the temporal and pterygoid muscles, thus causing much irritation in the flesh, I decided on the following method of procedure, although I should not put much weight in the latter objection, not having found it to hold good in practice, and there being always more or less danger, in disarticulating the bone, of dividing the facial nerve and producing paralysis of the face. I was therefore principally governed by the apparent extent of the disease.

The patient being fully etherized, an incision was made through the skin, commencing just in front of the articulation, and half an inch below the zygoma, which was carried with a semi-circular sweep backward round over the tumor, skimming lightly over the facial artery, and terminating upon the chin, about an inch and a half from the lip, opposite the second incisor tooth. The flap was now partially dissected up, and the facial artery cut and tied, in the way I had proposed before the operation. The dissection was then commenced more freely, when the facial artery, which had been lifted near its origin by the tumor, was cut again, although the incisions were not carried any further below than previously. The blood at once spouted out with such force as to completely fill my eyes, and obscure the operation. I mention this fact to show how the best concerted plan may be frustrated by the anatomical displacement of the parts induced by the growth of tumors in their neighborhood. Although the flow of blood was arrested at once, the patient became quite faint, and was obliged to be placed in the horizontal position for a few moments, which is also worth adverting to, as so rarely occurring in the course of surgical operations where the patient is kept up by the stimulus of the ether, and which probably, previous to its introduction, as often occurred from the exhaustion of the system by pain as from the loss of blood. A tooth being removed, the jaw was partially sawn through with a small saw, and the section completed by the cutting forceps. Hitherto no blood had entered the patient's mouth, notwithstanding the profound state of etherization. The tumor was now dissected away from the tongue and soft palate, and being seized by the left hand was depressed, so as to allow the attachment of the temporal muscle to the coranoid process to be cut away with the scissors. The disarticulation was completed by cutting into the articulation from the inside with a knife, care being taken to keep close to the bone and not wound the internal maxillary artery. The only vessel of any size requiring ligature was the inferior maxillary.

The wound was allowed to drain for two or three hours, when it was closed by six or eight points of suture. The patient had scarcely a bad symptom, and the wound was almost entirely healed at the end of a couple of weeks, when he left town.

On making a section of the tumor with the saw, the jaw was found expanded into a shell, the contents being a soft grey matter.

It may be worth mentioning, that in depressing the jaw for disarticulation, although done with great care, the ramus partly gave way in the tumor, against which occurrence a caution is given in some works on surgery. The facial nerve, and so far as could be ascertained, the parotid duct seemed to have escaped the incisions, the dissection for the disarticulation of the bone being made after the tumor was sufficiently free, as far as possible from the inside.—*Boston Medical and Surgical Journal.*

METROPOLITAN SCHOOL OF DENTAL SCIENCE.

This School was inaugurated on Wednesday, October 5th, in the presence of a large number of the Medical and Dental Profession.

Dr. Richardson, the Professor of Anatomy and Physiology, at the request of his colleagues, delivered the Inaugural Address, which was listened to with marked attention.

We subjoin a verbatim copy.

INAUGURAL ADDRESS.

Gentlemen.—We have met to-day, to open in formal manner a school for the advancement of the science and art of Dentistry. The undertaking is novel in a double sense. The school is new, and the school is the first of its kind in this kingdom. The history-books tell us of our forefathers, "that cut off by sea from the rest of the world, they became mariners at first from necessity." It may in the future be said of the modern dentists, that cut off by custom from the rest of the scientific world, they made scholars at first from necessity; and I trust it will be added in continuance of the argument, that what originally seemed an inconvenience, turned out in the end so much to their advantage that they are acknowledged by all persons to be the undisputed lords of the science ocean.

Were I, in the remarks I have to make, to follow entirely the bent of my own inclinations, I should try to beguile the hour by addressing myself as a teacher to those exclusively whom we hope to see taking permanent possession of these benches; not as listeners to a discourse so transitory as this, and spoken at a time when a warm enthusiasm prevails; but as calm, hardworking disciples determined on one point, that nothing which the Dominie knows, and is willing to tell, shall be unlearned. I should like, I say, to make this subject-matter apply especially to these; to point out to them, in so far as my ability may permit, the mental elements required in the course of philosophical labour, the methods of inquiry, the worth of the study, and the rewards and the happiness resultant.

But inasmuch as I have come here with yet another intention before me; as I stand, for the moment, the representative of those who have projected this school, it is incumbent on me in the first instance to describe, in simple and practical terms, the principles upon which the school is founded, and the character of the teaching which is here to be carried out.

The first intention, then, is to elevate the Dental Profession, by affording the facilities for a liberal professional education, by asserting, without assumption, the independency of the profession, and by aiming at the establishment of an entire unity, either now or hereafter, amongst its divided brotherhood.

Until within these last few years, Dentistry as a particular calling has had no recognition, except if the expression is allowable, in that individualism which has marked it out as a practical science and art, followed by special men since the remote period when Herodotus himself met its practitioners in the Egyptian cities. All else has congregated itself, and claimed recognition; the priest has his order, the barrister his temple, the physician his college, and the merchant his guild. The dentist, isolated by his pursuits as much as the rest, his nothing.

But these last few years have wrought a great change here as abroad. America has now her Dental Institutions in abundance—the Continent its schools—while, in England, where the organization has been last to commence, and commencing has met with unusual, unexpected, and I am right when I say, *unnecessary* difficulties, it has progressed so quickly withal as to have led to the establishment of a college, and of a learned society kindred to others of older growth. These institutions, each like important in their respective spheres, are by their very existence clear indications of an association of ideas, if not at once of men. But such institutions, though by nature primary and pre-eminent, in that the manhood and full intellectual capacity of the section they represent is embodied in them, are not complete without a third, viz., one that shall give the ready means for the acquirement of knowledge to the junior or less advanced members of the professional body. An institution that shall induct these into their proper places in the older establishments, to supply as each generation passes to its inevitable rest, another, and another, and another, each one more perfect in knowledge, and reflecting a degree of respect and information equal to the taste, the refinement, and the intelligence of the age. I have now explained the meaning, present and remote, of the Metropolitan School of Dental Science.

To make their exertions the more useful and accessible, the founders of this school have endeavoured to take not only a liberal, but what is considered by all men freed from the bias of corporate interest, an advanced position in educational concerns. Guided by the experience, and forewarned by the errors of past educational schemes, they have cast to the winds all fancies about restrictions, preliminaries, curriculums, and prison-like enactments. Believing not only the anatomical truth, that every man has a brain, but the physiological fact also, that every brain is impressionable under sound and useful tuition, they open their doors to every repectable youth or man who, with the self-respect natural to a gentleman, will listen to their teachings. But enforcement there is none. The teacher will lecture under no hard system—the student will learn in liberty. Who is there that wishes not the knowledge for its own sake, and for the certain advantages following its possession? He has no invite here. Or as the great English Protector said to his never beaten volunteers :—

> "I pray consider it. Do I come to tell you that I would tie you to this war? No. But if you can come to prosecute it, prosecute it vigorously, or don't do it at all. I think it my duty to deal plainly; therefore this is what I advise you—that we join together to prosecute it vigorously."

Nor can it be feared, so long as no intermeddling statecraft intervenes, that success is not to follow such liberal enjoyment of educational pursuits. The history of the past, in its triumphs and in its errors, tells us in fact that education is never so ennobled as when it is free, and never so degraded as when it is fettered. The history of medical education is pregnant of this truth. I turn to the time when corporate greed and intolerance laid no hand on medical knowledge, and there are the schools worthy of the name, and there are the teachers of immortal celebrity, and there the students who rival the masters. I see the school at Padua, and Fabrizzio teaching the travelling Englishman the elements of the circulation. I see the school of William Hunter, and William teaching to unrestrainable brother John the rudiments of the classification of the living and the dead creation. In the same free school I see again the said John Hunter instructing the earnest Jenner in that method of research which was afterward to guide him to the great practical discovery of vaccination.

From this I turn to the modern school, with its divided, and divided, and divided schedules,—upon which mere compressed ragstuff all the unity of science is broken—with its three-year formulas, and its shepherd porters counting in the flock to listen unwittingly. And what is the effect of the contrast? Gazing at the one the true lover of science feels a glow, an energy, a soul-lighted enthusiasm, which lifts him, like sweet sounds or the beauty of a sunsetting skyscape, almost out of this little life. Turning to the other the whole dead attraction of earth draws him towards its centre, and so binds him hand and foot, as by magnetic cold, that it were relief to sleep from the picture, though the sleep were jeopardous.

The founders of the present school, as men of the world knowing the limitations of their project, make no pretension to rival the great schools abovenamed. But if not in fame, they would at least, if it were possible, imitate them in that freedom which has so often nursed fame; and thus striving would leave their endeavours to the consideration of all common-sense men, convinced that they who know most of education as an artistic effort will be the last to criticise.

The plan of instruction instituted in this school next calls for a word of description. It may be that in progress of time the practice of teaching will indicate some modifications or improvements. After the most careful consideration, however, of the requirements of the present day, the Faculty of Lectures feel that their design may be considered as accordant with the principles upon which the school is founded, and with its scope is an educational centre for members of a section of the community engaged in a special pursuit.

It has been urged repeatedly that for the necessities of one engaged in the pure practice of dentistry, there are actually required, in addition to a good general education, competent knowledge of but three scientific branches: viz., *anatomy*, *dental surgery and pathology* and *dental mechanics*. Grounded well in these three departments, and made directly conversant with them in practice, a dentist, it is argued, possesses all that particular information which the practice of his daily life and the welfare of the public demands.

In this argument there is an undoubted practical force and logic of no mean distinction. That is to say, there is a relationship between pure dentistry and medicine which is best maintained in amity, and with mutual advantage, by such friendly difference in the practical parts of each as shall prevent encroachment on either side, and the jealousy that might follow on such encroachment. In a word, it is felt that the present excellent understanding which obtains between the two professions, and by which they are and always will be equally benefited, is due to the distinctions of practice and of qualification.

In making out the educational system of the "Metropolitan School of Dental Science," all the strength of this argument has been admitted, and it has been arranged that the three above-named departments of science shall stand as the basis of the educational plan.

At the same time a more extended idea of the scientific endowments of the dental profession has been taken. It is assumed that the practitioner in dentistry, engaged in a pursuit that fills up his working hours in special scientific labour, is in a position, without any trespass on other practical pursuits, to devote a learned leisure to the pursuance of those higher branches of science which, unconnected mainly with the bread-earning duties, raise man above the drudgeries of life, and proclaim in demonstrative terms that in his full attributes—derived from a contemplation of the higher branches of natural knowledge—each man partakes of that divinity which once everywhere and even now in barbarous nations is allowed only to enshrine the person of the king. It is assumed that the dental profession has the means, as the will, to pursue in quiet moments these greater problems of the universe; and it is believed, as indeed it has been shown, that the members of this profession are never themselves so elevated, or their profession through them, as when they take a prominent position in these nobler studies, or sit, as one of them (Professor Bell) now most honorably does, in presidential rule over the followers of a philosophical sect. With these feelings, then, the scope of the school has been enlarged beyond the mere necessaries. There are added to it three distinct studies, which will give the Attic salt to the edibles, will render labour more pleasant, and will open the intelligent mind to thoughts and acts which the longest lifetime enjoys but too briefly. And this leads me to enter in some detail into the subjects which are really to be taught.

We take *Anatomy* then, as the first and basic subject, and in so far as time will permit, we shall make every effort to give to this department its due importance. Practical instruction must here of necessity be the secret of success to the teacher, and practical learning for the taught. The student will find in this pursuit the simplest and most satisfactory part of his studies. In this all is straightforward sailing. The acceptance into the volume of the brain of natural records, freed from speculation, and acquired with mathematical precision.

To this Anatomy we add *Physiology*, or that science that gives vitality to the dead record. Which says of this bone, this muscle, this nerve, in their living time these parts did such and such duties. Without this sister science Anatomy were disgusting in its details, and comparatively useless in its results. With it the heaviness of death is past, and the mind, receiving glimpses of those living actions which concern us most intimately, sees open to it a new world of thought, more expansive than is supplied by the mere material universe in its widest representations.

It is wonderful, overpoweringly wonderful, to go with the astronomer in his wanderings. To see him gauge the infinite; to observe him, with the genius of Leverrier, step in mental calculation out of the extremest known range of this system of planetary worlds, and add thereto another world, which has never before been seen, but appears as at his bidding. To see him next hiding himself for a season in the glory of the sun, return and say that between the radiant luminary and the first known planet of the system there exists yet another,

> "Lost in the near effulgence of his blaze."

But what is this in its wonder to the still greater wonder which is opened to the philosopher of life? To him who shall read the physiological laws truly; who shall master the dead matter the dissector maps out; to whom shall be revealed the nature of that living force and principle by which the greatest of material problems are wrought out, by which the mind in mastering those problems performs its functions to that end, by which the hand which perpetuates the labor does its task in obedience to the mind?

When, then, we include in our scheme the science of life, we offer to the student the richest branch of natural study open to his intelligence. A work which he can not only *do* and follow, but *do* and *lead.* A work which, but little understood by the public, claims pupils by the million. A work to the which every simple, well-known thing, every insect, every flower, every man, offers a problem.

To give another more practical meaning to Anatomy and Physiology, we shall blend with it, incidentally, a third subject, *Pathology*, or the study of disease. It will be obvious that in this direction our attention must be confined chiefly to the pathology of the organs of mastication; but enough will also be supplied to guide the learner to a knowledge of the general and more useful principles of this interesting science.

The second division of our educational scheme is entitled *Dental Surgery.* In this department the teacher will ask attention to those practical daily duties upon which the science, as a science, mainly rests. There will here be introduced the history of surgical manipulations on the dental organs; the symptoms, course, and results of dental disease. The effects of various agencies, constitutional and local, in the production of such disease. The influence in their turn of these diseases on the body at various periods of life, and an account of those measures, remedial, or preventive, or both, which the most advanced experience shows to be of the greatest service in treatment.

The third subject in our design is *Dental Mechanics*, or that art, for here Dentistry takes in an art of the most simple and beautiful type, which shows how nature may be supplemented, and I say it with all deference to the worthy dame, in some cases surpassed; and again how natural parts may by sundry scrapings and stoppings be restored and preserved. There has been, and if I am not erring still is, an attempt made now and then to ignore this department of Dentistry, because it is mechanical. I have never, however, for my part met with any dentist or surgeon-dentist who so far forgot himself, in ignoring it, as to forget the receipts of certain advantages derived from it in the shape of such specimens of fine metals as it delights the masters of Her Majesty's Mint to stamp right royally, or of such relics of crisp paper as the little old woman in Threadneedle Street chooses to shape into billet-doux for her admiring favorites.

Anyway the founders of the new school have no such scruples, and being themselves (such of them as can practice the art) rather accustomed to find it an essential; and being further assured that he who cannot practice it, or at least superintend it, is but half way towards good or successful practice, they have felt it a duty to make this subject a basic one for the student; and that it may be taught thoroughly have arranged to have it taught entirely by demonstration.

It has been further agreed to institute a chair in this school, from which will be taught the *elements*, or rather the *principles* of *Surgery*. It is not to be expected, nor is it intended, that the lecturer will here, in the short course to which he is confined, enter at length, or in detail, into surgical science. But he will be enabled to carry out, nevertheless, a very important intention. He will lay down such instruction and practice as will give the industrious man an insight into the higher practical branches of surgical skill, and will make, as the learned Caphagus has it, "the rudimans" so clear that no difficulties shall stand in the way of him who may choose to apply—after observation and reading,—to the mastery of the science in its full breadth and usefulness.

The introduction of a chair of *Chemistry* into an educational establishment of this kind carries with it a practical, as well as a philosophical meaning. In the scientific family chemistry is the industrious sister, who never gets married, who has always more work of her own than she can do, and who is withal inexhaustible in the assistance she can render to the members of her circle, from brothers and sisters direct to nephews and nieces of all generations.

It matters little where, in the history of the world, we pick up this science, whether we trace it back to Tubal Cain, *malleator et faber*; to the Egyptian Hermes and his magical expositors, known equally to Moses or Democritus; to *the* Chemist—*i.e.*, Alchemist, and his transmutations of vile metals into gold; to Paracelsus, with his immortality-giving draught; to his rhapsodic followers, the Rosicrucians; to Agricola, seeking wisely to turn Chemistry to application in things of common life; to Berner and Becher, systematising the whole crude form into philosophy; or to Mahow and Stahl, penciling out the chemistry of living things: to whichsoever origin, I say, we trace back the science, we find it exerting an influence century by century, year by year, month by month, and now week by week increasing, until at length it has infused itself into all that we know and most that we do. But of late years this pervading science has certainly taken advance in no one direction more rapidly and more advantageously than in that into which it was first turned by the far-famed Agricola—I mean its application to the daily wants and arts of life. To chemistry in this sense the eye of every man is turned. For this the northern artisan, with dye-stained hand, stipulates with his employer for one hour a day, that he may listen to his chemical professor. For this the Prince of Wales, and hope of England, leaves the realm of royalty to learn the secrets that have made his country so great, and himself, through his country, so important in the eyes of all the world. Under various unnecessary names, such as Metallurgy and Technology, the science has thus been carried into new shades and grades. But, under whatever names, these, in an elementary sense, all mean, chemistry in its practical application to the wants of man.

Now in regard to Dentistry, Chemistry comes in with all her force, use, and friendliness. She tells the dentist, and she will tell him much more if he will only listen to her, what metals will best mould themselves to his will; what amalgams in respect of color, durability, and harmlessness, will answer his purposes best, and what materials will supply the most convenient substitutes for natural parts which have succumbed to disease. Nor, in relation to Dentistry, does she stop here. In the knowledge she supplies as to the efforts of external agents or organized structures, and of animal secretions on animal textures, she suggests much as to the first causes of natural disease, and the means by which such natural disease may be either prevented or cured. Lastly, it is the office of Chemistry to teach the elementary nature of things, organic as well as inorganic. To show of what parts each living structure is composed—tooth and bone, nerve and muscle; to indicate the method in which these parts range themselves into compounds and structures, and to compare arrangements in healthy and diseased states. In these respects, therefore, she assists materially the understanding in its appreciation of the laws of Physiology or Pathology, in their unity and in their combination.

If I have endeavored thus to render the good Science-sister a good turn, with some warmth of commendation, I have but done so on the principle that "one good turn deserves another;" for to me she has rendered much, and, by that sympathy which binds men of scientific taste in one bond, I feel that in offering the privileges of a chemical education, however short to the industrious student in dentistry, there is held out to him, both in poetry and practice, a pursuit which, followed out honestly, gives a daily recompense.

In the design of the School one last, but not least, object is brought into view. We have thought it desirable to introduce Comparative Anatomy into the plan. We have a reason for this, and a valid one. I have already stated that it is our intention not only to supply the necessaries, but to supply such further knowledge as shall form a nucleus for pure science, to which the wearied man may turn and feel in his relievement a mental occupation, and therewith a novelty, a pleasure, and a treasure. Now, there is a curious psychological fact as regards professions; they, like men, exhibit individually their special tendencies to particular tastes and pleasures, towards which, either by habit or nature, they turn as it were irresistibly, and sometimes show a genius which would not otherwise have been brought out. With regard to dentistry and its representatives, this disposition is seen leaning to natural history. I do not mean to flatter and say that the pursuit of natural history is as yet intimately allied with dentistry, but I say that the tendency to such alliance is very clearly marked in all parts of the world where dentistry is practiced; for, not only have many dentists, such as Nasmyth, George, and Bell, shone in this department of natural science, but the greatest comparative anatomist or natural historian of his day, John Hunter, contributed largely to dentistry, and seemed, out of the range of his philosophical thoughts, to hold the study of the teeth in the first rank as a practical pursuit.

Seeing, then, this natural tendency, we have determined to encourage it in our efforts, to suggest, in an outline of this science, the taste for its better acquaintance, to supply the principles, and, in regard to the comparative anatomy of the structures, which more particularly concern the practitioners adduced, to supply the details in their richness.

Did it belong to me to hold the pen of St. Pierre, that so watching with him through his microscope the architecture of an insect city, built on a mere strawberry leaf, I could, from the height of the greatness of man above insect, depict what I can only borrow, the outline of that microcosm; the city with its naturally constituted rafters of gold, pillars of ivory, and arches set with ruby and topaz; its cups, urns, pavilions, and domes, which human architect and goldsmith have not rivalled. Could I depict, in continuance of the brilliant history, the beings that live under a reflex thus enriched to whose perception through their compound eyes a drop of dew filtering in a capillary transparent tube is as a thousand cascades; or could I, leaving this tiny natural world, carry you with the force of Cuvier or Humbolt to the description of that Leviathan which those who go down to the sea in ships see and wonder at; could I describe his habits and home, I might be expected, nay I might from the two extremes of great and little, and their connecting links, sketch out in graphic force a picture at which the imagination should faint, first to behold and then to comprehend. To me this knowledge, this power belongs not. I can but offer to the student such childish thought for his ambition as invests a midsummer dream when something is said or suggested, for which more is waited, and which afterwards, undefined and undefinable, excites yet to desire and hope—the desire, the hope of some realization as substantial as it is unknown, and which, having neither shape, nor color, nor form, is nevertheless felt to be radiant with beauty.

It will be the congenial, the delightful task of one of my colleagues to lead the student through the range of truth above shadowed forth, nor, despite the tenth great precept, can I envy him less in his labours than admire him for the ability and industry by which those labours are sure to be rewarded.

But when I have pointed out the indirect value of the natural history pursuits, I have scarcely given to them even fair commendation, or their just weight. In them is embodied something also of the direct and the practical. By them comparative pathology is introduced. By them the structnre of animal tissues and their application to the uses of man are made apparent. By them the analogies between man and his lower earthmates are established.

I have thus placed forward the intentions, in so far as I can represent them, of the founders of this school. It has been so long the custom, in considering the question of professional schools, to connect with them the idea of an infinitude of departments, that the staff of teachers may at first sight seem capable of increase. We hope, however, to make it obvious in practice, that limitation of subjects instead of proving an inconvenience, by obliging us to group analogous studies round a common centre, and to reduce the actual amount of personal attendance on the part of the student will cause the unities of natural science to be more clearly depicted, and labour to be conserved. If there has arisen one doubt on these points, it refers to the subject of *Materia Medica*, as a department in itself distinct. It has been intimated to the faculty of lecturers, that as there are certain remedial agents used in dentistry —in the way of lotions, balsams, stoppings, and the like—it had been well to make this a particular study. The suggestion, after having undergone careful consideration, has not been adopted. The Faculty has concluded, that all reference to such remedial measures belongs naturally to the lecturer on dental surgery, who will therefore make it a special part of his course.

I have spoken in so far on matters pertaining to the Metropolitan School of Dental Science as a separate institution. It is incumbent on me, however, to allude to two other facts, which extraneous in themselves, have nevertheless a bearing on the success of the school as an educational enterprise.

Firstly, then, in order that the students here educated may have the advantage of clinical instruction under teachers, some of whom are also teachers in the school, the dental practice of the Westminster Dispensary has been rendered, by new and excellent arrangements, subservient to practical education. Here the student for a small fee may enter to a special course of learning, and may supplement the school studies by daily observation and personal experience.

In the second place, the College of Dentists, by a recent change in its laws, has established an examination for membership. With sound discretion, the college authorities have enforced no curriculum of study, but as their examination requires knowledge, and knowledge which must be obtained, the opening of a school at the present moment stands in the free-trade relation of supply to demand.

And here the opportunity is most fitting for an acknowledgement, on the part of the Faculty of lecturers, of the kind interest and valuable assistance rendered to the faculty by the council of the college. Not only have the members of the council exerted themselves individually for the success of the school, but in their united and official capacities they have granted an efficient aid, without which the school itself had scarcely been established—or at least not without an excessive outlay of labour and of pecuniary means.

When I state that excellent accommodation for lecture purposes has been allowed to the Faculty at a mere nominal rent; and that three valuable prizes (one of them named in honour of the founder of the college the Rymer prize) have been offered as rewards to those students who shall most distinguish themselves in industry and proficiency, I have said sufficient to indicate the liberality of the council of the college, and its earnestness in the cause of professional education.

In return it has been a source of equal pleasure to the Faculty to offer to the college members such advantages for attendance on the lectures as shall afford a partial but grateful compensation to so much considerate care and friendly assistance; both the more acceptable because devoid of pretence and strictly in season.

From the history of the school and its intention, I pass now from a general to a particular topic—to the selection of a few phrases addressed purely to the student, his labours and his prospects.

I need not repeat what has been said as to the conditions under which the student life may be commenced in this place, nor as to the class of students for whom the instruction is intended. I shall assume at once that my words reach only the ears of the industrious and well-meaning, so that in the way of direction and encouragement there will be required no line from me as to moral conduct or example in life. I want, indeed, only to speak of the way to work, and of the rewards which are offered for work well done.

The primary principle, then, I would lay down as necessary to success is *Reliance.* Reliance not so much in teachers and books as in the inner self, as in the power of the individual mind to doing and conquering. The student resting on his own strength for action, and on the strength of others more advanced for the supply of knowledge, is already more than half-way on his road to position and honour. In suggesting this reliance, understand that I do not mean by it conceit. Conceit is not reliance on self, but want of reliance in every thing that is not self. Conceit is therefore, in truth, a real want of self-reliance; since man is so constituted that his own faith, however great, must, to be applied, be linked to a certain degree with the faith that is in others.

No! I mean by self-reliance such simple trust in industry, in thought, in natural capacity, as shall enable the student to feel that he can work as others work, learn as others learn, and succeed as the best. Or, to put the principle in another light, I mean a negation of doubt, the parent at once of idleness and of failure. The poet has indeed well instructed us when he says—

> "Our doubts are traitors,
> And make us lose the good we oft might win,
> By fearing to attempt."

And the prose poet Bunyan, when he puts his hero into Doubting Castle, expresses with another intention the same truth. Therefore I commend you to steer clearof doubt in the acquirement of knowledge, for by this you will attain the first great secret of learning—simple trust in self and in learning itself.

But the negation of doubt, or in other words the appreciation of faith as to your own powers, must, to be kept in order be kept in work, and must be based on the constant and repeated observation of the natural phenomena which it may be your duty to investigate. This thought leads me to the naming of another faculty of mind as an essential one to be cultivated. I will call it *solidity*, as the best synonym for a long definition.

Now solidity is obtainable in study by this preliminary process, a determination at first to learn all facts and no opinions. In natural studies the possibility of this resolve is easy, because the natural laws and ordinances, in so far at all events as we can comprehend them, are uniform and stable; or so nearly so that trifling aberrations in details serve only to imprint more firmly on the mind the elementary truth. You, therefore, setting forth in your pursuits with a certainty of precise knowledge before you, may without the least fear throw your whole energies into your labour, with the conviction pre-eminent that by constant and close attention to each fact, and by repetition and repetition, you must learn and learn well. Leave you this system in your early days, and the smoothness of your course is lost. The apparent true will melt into the absolute false, and the laughing world will drive even hope out of your hearts.

When the great Columbus set out from Palos to sail into an unknown sea, his companions not appreciating the primary facts on which the faith of their commander was founded, saw ever and anon in the horizon island upon island; they defined the shores, counted the mountains, shaped the bays, and even traced the rivers. These islands their master could never see; and as the little caravels steered on their way the islands melted (for they were cloud islands), melted into the thin air. The sailors of Columbus are but the types of those students entering into the domain of natural science, who, fixing their vision on cloud islands and suffering grievous disappointment as island after island dissolves, lose their self-reliance, lament the day on which they set forth on their wanderings, and offer open mutiny to those who would guide them safely to the goal. I beg you, then, as I wish for your prosperity, to remember this simile, and to be mindful so to adhere in the early part of your careers to the cultivation of positive knowledge, that if it ever be your fate to venture into the open sea, you, like Columbus, may have such a foundation of abstract truth to rest upon as shall carry you stout of heart and reliant until the land of your discovery is in view

But you will ask me how you are to know the real from its similitude. The secret is simple. Learn as fact all that is demonstrable to your senses. You may have heard that in studies such as yours, there is little pretence to demonstration. The insinuation is untrue. You will have to learn anatomy—human and comparative. That carries with it direct demonstration. You will learn physiology; the best of that admits of direct demonstration. You will learn operative science; that may be exact in its teachings. You will learn the physical properties of elements and compounds; and here too the demonstrable is the possible. There is in short, in all these sciences, enough to be acquired in positive knowledge to occupy the first five years in the life of any student. If I were asked, indeed, to write a library of science for educational purposes, I would throw all present systems aside, and begin each series with a lesson-book, showing what in that department has been actually proved. As there is no such ready method at hand, you must grub out the system for yourselves—a task you will readily perform if you remember the single rule, that a natural fact is always a demonstration.

At the same time, bear strictly in mind that it is by no means necessary to place a low estimate on the advancement of knowledge by logical theory; nor am I desirous to prevent you from the pursuit of first-class theoretical learning. The highest genius of men of all sciences has exhibited itself in the construction of theory, and much interesting knowledge is based on nothing else. I wish you simply to let alone the theoretical until you have grasped the actual. This achieved, the further wish is mine, that the genius of Newton for theoretical contemplation may be yours.

Another mental faculty which I would have you cultivate, is that of *learning by gradation*, step by step from fact to fact, from mastery of facts to their combinations, and from thence to the study of theory, as placed on facts, single or combined. On this point, the admirable Locke, whose essay "*on the conduct of the understanding*" should be bought by you all as the first of class-books, has an observation which in its depth and simplicity has never been surpassed. Thus it runs:—

"The surest way for a learner in this, as in all other cases, is not to advance by jumps and large strides: let that which he sets himself to learn next, be indeed, the next, *i. e.*, as nearly conjoined with what he knows already as is possible: let it be distinct but not remote from it, let it be new, and what he did not know before, that the understanding may advance; but let it be as little at once as may be, that its advances may be clear and sure. This distinct gradual growth in knowledge carries its own light with it in every step of his progression in an easy and orderly train, than which there is nothing of more use to the understanding. And though perhaps this may seem a very slow and lingering way to knowledge, yet I dare confidently affirm whoever will try it in himself, or any one he will teach, he shall find the advances greater in this method, than they would, in the same space of time, have been in any other he could have taken. For the greatest part of true knowledge lies in a distinct perception of things in themselves distinct."

I should spoil the whole effect of my proposition, were I to attempt to qualify or to add to so masterly and clear an exposure of its truth and its promises.

A last principle which I would suggest to you as to be remembered in your philosophical pursuits, I shall designate *concord.* We may consider this principle as bearing with it two motives, as applying, that is to say, to one's self and one's own studies, and to others and to their proceedings. As applying to your own pursuits, it simplifies them, and strengthens their realities. As in music the word concord suggests two distinct notes, which struck together make a new and perfect sound, as well as an infinitude of such combinations, all in harmony; so in the other sciences the word conveys to the educated mind the unities of science, and the modifications, however endless, which are built of the unities.

It is indeed by knowledge of this concord, that the man of true genius is separated from the man of ordinary acquirements.

The latter is always doing the drudgery of detail, learning individual intervals and discovering more. The former puts these together and finds the combinations. The one makes the instrument, the second writes the inspiration. They may both be useful in their way, but I would have you of the first.

But the word concord expresses an idea of more common-place character, but not less useful to us as men. It recalls to the classical mind "Concordea," and her temple by Camilius. It conveys in this sense the lesson that, for the proper pursuit of science, concord with other minds is necessary. A difficult suggestion this, I know, one hardest of all to carry out, for mind is the most unstable attribute in nature. But if there is one means more than other by which, in your relations with your fellows, moral concord is to be sustained, it is this: That you mark out your own business and mind that; and that, if you have anything to say original on your part, you say it with care and modesty, and leave it there as it has been spoken, content to hold to it, to modify it, or to withdraw it, as time and truth shall show its worth, but entering into no petty war as to its merits, and wearying no one by protestations as to its importance.

I press these commendations earnestly on your minds. The time, not less than the opportunity, bids me to the act. There are now extant in science a class of men by whom Science herself is stripped, and by whose clamour she is shaken to her centre. This class of men, having in themselves no ardent love for nature, having no true ambition, having neither courage nor industry for personal work, and having no method in their lives, seek notoriety, seek position, by systematically lying in wait to entrap and crush independent labour and individual exertion. With the least pretension to do the critics' work, these become the critics of the day, and as they learn the arts of supplanting logic by plausibility, and fact by perversion of it, they gain unquestionably a temporary influence, which brings to the true and honest heart the most embarrassing of all difficulties. You will meet these difficulties best by avoiding all entanglement with them; by yourselves never assuming the position of arbitrator; and by treating every critical word against your own well-intentioned and, to your best ability, truthful work, by one unanswerable argument—*absolute silence.*

I might, perchance, extend these observations as to the mode and advancement of learning; but if in that which has preceded the four cardinal principles—*self-reliance*, *solidity*, *gradation*, and *concord*—have been enforced with any success, the rest or the sequential may well wait.

It remains now for me but to point out the rewards which follow the pursuits of natural and professional knowledge. It were unnecessary for me to denote the value of knowledge in the abstract, or to labor at elaborating a sentiment long since expressed in these words, "Knowledge is power." Yet I must for a moment rest to observe that, to the younger members of the profession I address, there are certain particular and substantial advantages to be derived from it worthy of their most sanguine and purest hopes. There are before them for competition immediate honors. There are the ultimate rewards—an advancing social status,—a certainty and precision in practice,—a superiority in thought, manner, and act,—the appreciation of the public,—and the road to scientific fame.

Speaking as a scientific man, I know of no class to whom the honors of science are so freely offered as to the dentist. His occupation, at once professional and remunerative, permits of quiet for the most contemplative studies. The medical man, with a load of responsibilities ever on his shoulders, with human life resting on his skill, and anxious friends hanging on his lips for hope, has some excuse if, in the active practice of his special science, he leaves the general. The dentist, having no such responsibilities, has no such excuse; and if with present advantages before him, he allow medicine still to take the lead in general learning, his supineness is unpardonable.

But, gentlemen, I should fail sadly in completing this day's most refreshing task did I not point out to the student, now for the first time entering his new life, that above and beyond all I have promised him as the reward of his exertions there is a result derivable from them which neither fortune can modify, nor time remove, nor death destroy. I mean that in the studies with which he will grow conversant there is implied a communion with the good and the beautiful, which calms passion, subdues pride, and fills the mind with the ever-constant impression that what is must remain, and that an universal essence from which we are none of us removed, holds all creation in one common bond, and by an universal sympathy.

There is an ancient fable that Orphæus, or Philosophy, going into solemn solitude, by one magic touch of his lyre drew to him natures of all kinds, and by the sweetness of his melody made them as one in general harmony of feeling, and in the appreciation of the influence which so charmed their lives. There is hidden in this exquisite fable more than at first appears. It represents in figurative terms the harmony of nature, and the all-pervading influence exerted on intelligent beings by that harmony in its fulness.

Beautifully, forcibly, is the lesson here taught, but weak when compared with that modern and less obscure expression, which explains in direct terms that the elevating and combining influence of natural pursuits rest on the fact that they by necessity, in proportion as we cultivate them, lead us nearer and nearer to the beginning and end of all.

Shall I hesitate at a sentence? or tremble over a thought that may surpass the Grecian fable? I need not. The poet physician Akenside, in one paragraph, redundant of all I could say, lends me this last impression to leave with you—

> "The men whom nature's works can please
> With God himself hold converse. Grow familiar
> Day by day with his conceptions, act upon his plans,
> And form to His the relish of their souls."

At the conclusion of the above learned and eloquent discourse, Dr. Robinson proposed, and Mr. Tibbs seconded, a vote of thanks to Dr. Richardson, which was carried with acclamation.

[The above address so fully states the true professional needs of the scientific dentist, so admirably and in such refined language expresses all that is necessary for the student in our profession to know, that we need no excuse for presenting it to our readers in full.—Eds.]

MICHIGAN DENTAL ASSOCIATION, DETROIT.

ABSTRACT OF THE PROCEEDINGS AT THE LATE MEETING.

The meeting was called to order by the president, Dr. Porter, Tuesday evening, January 10, at 7½ o'clock.

The minutes of the last meeting were read by the secretary, and adopted.

On motion, Drs. Porter, Atkinson, and Cahoon were appointed a committee to prepare the order of business for this meeting.

On motion, Drs. Cahoon, Chittenden, and Farmer were elected to examine candidates for admission to the Association.

On motion, by Dr. Benedict, an invitation was extended to all practicing dentists out of the State, and all students who are preparing for the practice of dentistry, to attend the meetings of the Association.

On motion, Dr. G. H. Perine, of New York, Dr. E. J. Way, of Sandusky, and Dr. W. H. Atkinson, of Cleveland, were elected honorary members of the Association.

The committee on candidates for membership reported in favor of the following named persons, who were unanimously elected: Dr. J. S. Corbin, Ann Arbor; Dr. W. Y. Cleland, Detroit; Dr. L. A. Rogers, Grand Rapids; Dr. Geo. M. Cole, Detroit.

The Association then proceeded to the election of officers for the ensuing year:

Dr. C. S. Chittenden, of Hamilton, C. W., *President.*

Dr. W. Cahoon, of Detroit, *Vice-President.*

Dr. L. C. Whiting, of Detroit, *Secretary and Treasurer.*

Executive, Examining, and Publishing Committee: Drs. H. Benedict, J. H. Farmer, and T. A. White.

Adjourned to 9 o'clock Wednesday morning.

Wednesday morning.

Dr. Porter, on retiring from the chair, made a short but eloquent address.

Dr. Chittenden, on being conducted to the chair, made a few remarks; thanked the Society for the honor conferred upon him, and should do the best he could to serve them.

Committee reported order of business.

Several essays were read on Difficult Dentition, and the effect of diseased Teeth and Gums on the general health of the system; after which a discussion was entered into which elicited much interesting information.

Adjourned to meet again at 2 o'clock P.M.

Discussion continued, reading of correspondence, &c.

On motion of Dr. Porter, a committee of six were appointed to write essays on the different subjects for discussion at the next meeting.

The following were the committee, with the subjects on which they were appointed to write:

Dr. Whiting—On the effect of Diseased Gums and Teeth on the General Health of the System.

Dr. Porter—Difficult Dentition.

Dr. Farmer—Neuralgia and Rheumatism.

Dr. Mansfield—Mechanical Dentistry.

Dr. Cahoon—Dental Etiquette and Fees.

Dr. Chittenden—Second Dentition.

Moved, That two delegates be appointed to represent this Association in the National Association, at Washington, next summer.

Motion, Dr. Porter, That delegates be elected by ballot.

On vote, Drs. Whiting and Cahoon, of Detroit, were elected.

Motion, Dr. Benedict, That the delegates have power to appoint substitutes in case they cannot attend.

Motion, Dr. Porter, That one-half the travelling expenses of delegates be paid by the Association.

Motion, Dr. Porter, That the dues remitted to members heretofore, be paid, in order to raise funds to pay expenses of delegates.

Motion, Dr. Mansfield, No member of this Society shall take a student into his office and engage to teach him the practice of either department of dentistry in a less time than two years; and all such students, during their pupilage, shall have the privilege of attending the meetings of the Society, but shall take no part in its deliberations.

Moved, That Mechanical Dentistry be the subject of discussion in the evening.

Moved, That Dr. Atkinson now read an address to the Association.

Adjourned to 7 o'clock.

Evening.—Moved, That when the Society adjourn, it do so to meet at Ann Arbor, the second Tuesday of January, 1861.

Motion, A vote of thanks be given to those members of the profession who have sent their fee bills for the benefit of this Association.

Moved, The Association adjourn at 9 o'clock.

The evening was spent in conversation on Mechanical Dentistry.

We regret that we are unable to give a full report of the discussions at this meeting. It was well attended, social, and decidedly intelligent. The Association reflects credit upon the enterprise of the State of Michigan.—Eds.

BOSTON MEDICAL LIBRARY
JUN 26 1912

REPORT OF THE ANNUAL MEETING OF THE INDIANA STATE DENTAL ASSOCIATION.

Indianapolis, January 3, 1860.

The Indiana State Dental Association met in the room of the State Board of Agriculture, in the Capitol, pursuant to adjournment.

Several professional gentlemen from New York, Ohio and other States were present.

The President, Dr. Johnston, took the chair.

Dr. A. M. Moore was appointed Secretary *pro tem.*

The minutes of last meeting were read and approved.

The Treasurer, Dr. Nichols, made a report, which was, on motion, adopted.

Dr. Johnston, for delegates to the National Convention, made a report, which was received and ordered to be entered upon the minutes.

The following order of business for this meeting was reported by the committee and adopted, to wit:

1. Should pivot teeth ever be inserted; and if so, under what circumstances, and in what manner? 2. Inflamed dentine. 3. Treatment of Dental Periostitis and alveolar abscess. 4. Mechanical Denistry, including all the various modes of constructing artificial dentures. 5. Filling teeth. 6. Miscellaneous subjects.

On motion of Dr. Satterwhite an opportunity was given for Dentists present to become members of the Association, and such as did not join were invited to remain in attendance.

The committee of examination reported the name of Drs. J. T. Turner, of New London; E. W. Morris, of Waynesburg; J. Knapp, of Ft. Wayne; M. N. Manlove, of Logansport, and W. C. Stanley, of Dublin, for membership, and a ballot being had, said gentlemen were declared duly elected.

On motion the Association proceeded to the election of officers for the ensuing year, which resulted as follows:

President, J. Knapp, of Fort Wayne; 1*st Vice President*, P. G. C. Hunt, of Indianapolis; 2*d Vice President*, Hood, of Greensburg; 3*d Vice President*, J. P. Ulrey, of Rising Sun; *Treasurer*, J. G. Nichols, of Indianapolis; *Recording and Corresponding Secretary*, S. B. Smith, Terre Haute.

On motion, the Association adjourned to meet at 9 o'clock, A. M., to-morrow.

MORNING SESSION.

January 4*th*, 1860, 9 A. M.

The Association met and was called to order by the President, Dr. J. F. Johnston.

Drs. Perine and Moore were appointed to conduct the President elect to the chair, on assuming which Dr. Knapp made a laconic speech, replete with good advice, beauty, and enthusiastic devotion to the profession.

Dr. Johnston read a letter from Dr. S. W. Goode of Madison, which was received and ordered to be placed on file.

The Committee of Examination proposed the following names for membership: Drs. S. W. Goode of Madison, Pifer of Lafayette, G. A. Wells of Indianapolis and H. T. Manlove of Logansport, all of whom were unanimously elected.

The President announced the following standing committees for the ensuing year:

Committee of Examination, Drs. P. G. C. Hunt, S. B. Smith, J. P. Ulrey, M. N. Manlove and —— French. *Committee on Order of Business*, Drs. A. M. Moore, —— Lupton, J. F. Johnston.

The President then called for the regular order of business. 1st, should pivot teeth ever be inserted, and if so, under what circumstances and in what manner? Which being discussed at some length was laid aside and the association adjourned to meet at 1½ o'clock.

AFTERNOON SESSION.

Association called to order by the President, Dr. Knapp.

2d. Order of business was announced, namely, discussion on "Inflamed Dentine," which was participated in by Messrs. Ulrey, Johnston, Lupton, and others, when it was passed.

3d. Called up, to wit: "Treatment of periostitis and alveolar abscess." Drs. C. C. Dills, Johnston, Manlove, Ulrey, Moore and Hunt expressed their views, and the subject was closed.

The order of business was suspended for Dr. Lupton to exhibit casts of cases of irregularity and explain his method of treating the same.

Dr. Perine of New York, also exhibited several interesting specimens of Exostosis and other morbid conditions. After which the 4th order of business was taken up, viz: "Mechanical denistry," and discussed by Drs. Moore, Dills, Ulrey, Perine, and J. T. Toland of Cincinnati, and the subject closed.

On motion, it was resolved, that when this session adjourn, it will be to meet in this city at 2 o'clock P. M., on the 1st Tuesday of January, 1861.

On motion, the association took a recess till 6½ o'clock.

EVENING SESSION.

The Association was called to order by President Knapp.

Present, Drs. Johnston, Ulrey, Nichols, Lupton, Toland, Perine, Smith, Stanley, Morris, Pifer, Dills, Hunt, Cairne and Turner.

On motion, the subject of a fee bill was taken up and discussed at some length, when Dr. Johnston offered the following resolution, which was unanimously adopted:

Resolved, That the Indiana State Dental Association recommend the following fee bill as a fair bill of prices for the various operations therein named, and urge the propriety of our members, as far as possible, adopting it.

BILL OF PRICES.

Filling smallest cavity with gold,	$2 00
" large, including fang, gold,	6 00 to 25 00
" " " " Tin,	1 00 to 2 00

Removing superficial decay,	$1 00 to $3 00
“ tartar,	1 00 to 5 00
Destroying nerve,	50 to 1 00
“ “ and filling fang	3 00 to 5 00
Extracting,	50 to 1 00
Inserting pivot tooth,	3 00 to 10 00
Resetting “	50 to 1 00
Rivetting tooth on plate,	1 00 to 1 50
Soldering on tooth or clasp,	2 00 to 5 00
Regulating teeth,	10 00 to 100 00
Professional visit,	1 00 to 3 00
Set teeth, on gold, plain, without rims,	100 00 to 125 00
“ “ “ with rims,	125 00 to 150 00
“ on platina,	125 00 to 200 00
“ on silver,	60 00 to 75 00
“ on vulcanite,	100 00 to 150 00
“ temporary, on silver, not less than	50 00
Single tooth on gold, suction or otherwise,	8 00 to 12 00
Each additional tooth,	5 00 to 6 00

The Secretary was instructed to have 300 copies of the above fee bill printed for the use of the Association, and draw on the Treasurer for the payment of same.

On motion of Dr. Johnston the remaining orders for discussion were passed by and the order of miscellaneous business announced.

By request of the Association Dr. Moore read an essay upon the duties of members of this Association—a copy of which was requested for publication.

The Secretary was instructed to take the steps necessary to the incorporation of this Association.

The President and Secretary were instructed to draw on the Treasurer for the amounts necessary to pay the expenses incurred at this session.

On motion a committee of three members, consisting of Drs. Hunt, Wells and Moore, was appointed to audit all the accounts of this Association.

The minutes of the session were then read and approved.

Adjourned till 10 o'clock Thursday.

MORNING SESSION.

Indianapolis, Jan. 5, 1860.

Association met pursuant to adjournment.

On motion of Dr. Manlove the Association proceeded to the election of delegates to the National Association to be held at Washington, D. C. which resulted in the appointment of Drs. Manlove, of Logansport; G. A. Wells, P. G. C. Hunt, John F. Johnston, Indianapolis; A. M. Moore, Lafayette ; and J. Knapp, Fort Wayne.

On motion Drs. S. M. Goode, of Madison, S. B. Smith, of Terre Haute, and J. P. Ulrey, of Rising Sun, were elected as contingent delegates.

On motion the Secretary was instructed to procure a suitable book in which to transcribe the constitution and by-laws of this Association and register the names of all the members.

On motion the minutes were read, offered and adopted.

Some of the adjoining States were represented, among which we noticed, from New York, Dr. G. H. Perine of the Dental Journal; from Cincinnati, Dr. John T. Toland, of the Dental Register. These gentlemen are also honorary members of the Association.

The subjects discussed were treated with much spirit, exhibiting on the part of the speakers, great intelligence and scientific research, and perfect familiarity with the subjects, eliciting much valuable information.

We have not space to publish the remarks of all the different members, but this much we desire to say, that we have seldom seen a body of more intelligent, industrious and refined men, who seemed more imbued with that enthusiastic love of their profession which inspires a man to ignore self and self-interest for the general good, each ready to give and receive, to improve others and be improved, with a general exhibition of courtesy and good feeling most pleasing to behold.

In addition to the regular business the propriety of adopting a uniform fee bill was discussed at considerable length and with much good humor. It was finally agreed that the above list of prices be recommended as a fair compensation for the various dental operations.

This Association is a credit to the State and city, and is calculated to do much good in elevating the Dental Science and creating a proper appreciation of operators, which guarantees to the patient the best skill at fair prices. We look upon the careful protection and preservation of the teeth, and the scientific adaptation of artificial substitutes of the first importance for the preservation of health and beauty, as well as a matter of respectability and common decency, and in this, more than any other of the affairs of life, if it is worth doing at all it is worth doing well.—*Indianapolis Journal.*

THE EFFECT THAT DECAYED TEETH AND THE LOSS OF THEM HAVE ON THE GENERAL HEALTH OF THE SYSTEM, AND HOW TO PRESERVE THEM.

Read before the Michigan State Dental Association.

BY T. A. WHITE.

Various opinions have been advanced in regard to the manner that decayed teeth and the loss of them affect the general health of the human system. We are well aware that they are intimately connected with all the great functions of life, and that the human system is a delicately formed machine, each part dependent upon the other and sympathizing with the whole. Thus we see "from nature's chain whatever link we strike, tenth or ten-thousandth, breaks the chain alike." And wherever there is a morbid susceptibility of functional derangement, however little it may be, it will insidiously work out its deleterious effects in the end. And as we know there never is a cause without an effect, nor an effect without a cause, some may be affected from very trifling causes while others exposed in the same manner are seemingly unaffected, but at the same time the remaining organs are taxed indirectly in proportion to the number of links broken in the chain of our being. What then must be the effect of a mouthful of decayed and viscid matter drawn by every breath upon the tender structure of the lungs, and circulated with the blood through the whole system, producing diseases of a nervous debility, such as neuralgia, dyspepsia, weak stomach, sick headache after eating, ear-ache, inflammation of the eyes, which diseases and deranges the whole system, which frequently requires long services of a physician, and finally terminates in a broken down constitution. And frequently when physicians are consulted in chronic diseases of a nervous affection, they often examine the teeth and refer their patient to the dentist. Many cases of that dreadful disease which we call neuralgia facici, which have resisted all other treatment, have been cured by treating the teeth or their removal; as the nerves belonging to the eye, ear, nose, mouth, and over the cheek are distributed in many branches to the teeth, are ramifications of the great nerve of sensation, called by anatomists the (5th) fifth pair, whatever part of this chain is irritated the pain may be experienced in any other part. When in this condition we find they have a weak stomach, bad digestion, an offensive breath, and generally bad health and low spirits, all for the want of good and healthy teeth to masticate their food with, which is the most important office they have to perform, and which is a preparatory process indispensable to a quick and easy digestion. The loss of these organs in brutes is soon followed by death; but in man they can partly be restored. Physicians contend that more than one half of the diseases that afflict mankind arise from a disordered state of the stomach. And why this disordered state of the stomach? In the language of another who has poetically said:

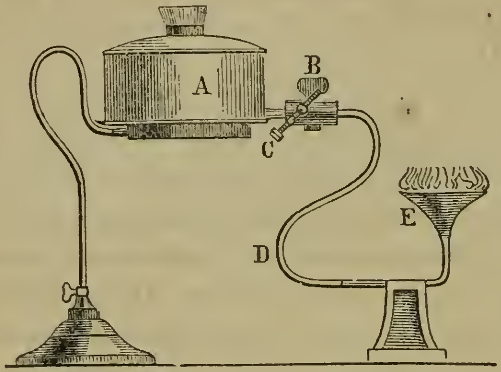
"Tis nature's general plan,
That all the solid aliments of man
Before admission to the secret shrine,
Where vital chemistry with skill divine,
Transforms the cruder mass to milky chime,
By nature's metamorphosis sublime—
Should suffer comminution;—hence we find
The dental organs formed to cut and grind,
And masticate the food;—this rightly done,
The process of digestion well begun,
Results in health to each dependent part
That feels the living impulses of the heart.
But when from loss of teeth the food must pass
A crude and rigid and unbroken mass
To the digestive organs: who can know
What various forms of complicated wo,
May rise terrific from that single source?"

Now after speaking of the various evils and disadvantages of diseased teeth and the loss of them, &c., I appeal to you to consider the vast importance of preserving them and your offspring from decay. Being convinced that they are connected with all the great functions of life, and that nature has rendered them durable in their substance, combining strength with symmetry, and being the hardest substance of our whole bodies, and intended by nature to survive every other part, why then are these useful organs found decaying before middle age, and even in childhood's days?

Is it by our unnatural mode of living the teeth become loaded with the most disgusting and dangerous accumulations? or is it the want of cleanliness? which no doubt is the best preventive to withstand this dreadful malady, (as cleanliness is akin to godliness.) All dentists should strongly urge this on all of their patients and especially to children, to acquire the habit of cleaning their teeth every day. When they are kept literally clean no disease will be perceptible. Parents should also instruct their children how to take care of their teeth, so that it may become a habit which will be conducive to their health and comfort. They teach them to wash and to make clean the outward appearance, why then suffer their mouths to become the receptacles of corruption and decay; for health depends vastly more on the preservation of these organs than on external appearances. Educate them to use the same care in regard to their mouths that they bestow on the exterior, and as they grow up the habit will become a fixed one, and one for which they will be grateful for through life. And what is more of an ornament to a young lady than a fine set of teeth? what is so necessary as to have the casket of the face studded with those pearly gems, since it is her destiny to please the eye before she can win the heart? Handsome teeth and purity of breath are an advantage which cannot be prized too highly by her, as the want of either is the most unfortunate circumstance that can befal beauty, and is alone sufficient to destroy the most perfect and otherwise inviting charms. And to young men, is it not proper for you to pay some attention to your teeth? nothing is more unbecoming than to go into company among the refined with filthy teeth or a contaminated breath. Pay a good dentist for preserving and beautifying your teeth, one half for what you pay for that obnoxious weed called tobacco, and many other things to gratify the appetite, which would be so much better for your health and much more agreeable to your friends, for as the teeth of a man is, so is his taste. Now in conclusion and in view of these hasty and imperfect remarks, I hope many may take heed and as they value their health and comfort, will attend to the rescue of their teeth, because if neglected too long they never can be restored to their primitive beauty again; and it is now reduced to a certainty that decaying teeth can be saved; and it is also a fact, that if neglected too long they are *forever lost.*

FRANKLIN'S GAS AND ALCOHOL REGULATING FAUCET.

It is seldom, indeed, if ever, we have experienced more pleasure and satisfaction in witnessing the practical operation of any appliance to facilitate the labours of the mechanical Dentist, than we did the other day, in the working of this ingenious, but simple contrivance gotten up by Dr. B. W. Franklin, for regulating the flow of Gas and Alcohol in the vulcanization of Rubber and other Gums. The Copper Heaters, so small and really neat in appearance, would be an ornament to any office, and with this improvement requiring so little attention, it seems to us will be highly appreciated by all who vulcanize their own work with Gas or Alcohol vulcanizers. Those heretofore in common use have been operated with coal, with stoves, &c., which in warm weather are more or less inconvenient on account of the heat, but more in consequence of the constant attention required to keep the heat within a certain range.



The advent of Gas and Alcohol vulcanizers, occupying so little space, so neat in appearance, and so simple in construction, must give an additional impetus to this really popular system of mounting teeth.

The following cut illustrates the operation of this Faucet. A, reservoir for Alcohol; B, thumb-piece; C, set-screw. When the thumb-piece of the Faucet is turned at an angle so as to allow the proper quantity of alcohol to pass to the burner E, the set-screw is turned up against the thumb-piece, and the nut on the set-screw screwed up hard against the part through which the set-screw passes, it will be seen that the reverse movement of the thumb-piece passes away from the end of the set-screw, and if turned sufficiently will shut off the flow, when the work is vulcanized. E, the burner, is funnel-shaped, requiring no wick, the reservoir being higher than the burner a constant flow is kept up and controlled by this Faucet, and no possibility of exploding where gas is employed. A piece of rubber tubing, 10 or 12 inches long, is attached to either end of the Faucet; one end of the tube is placed over the burner at the wall, and the other end to the burner under the heater, and the flow of gas is controlled by the same operation of the Faucet as described above.

The cost of gas for vulcanizing two casts measured by meter was 1 1-7 cents; alcohol, at 80 cts. per gal., 5 cents for the same number. We understand that the inventor intends applying for Letters Patent.

Editors of the New York Dental Journal.—In the last (Jan.) No. of the Dental Register of the West, under the head of "*Business Notices*," I find the *Proprietor* indulging in gibes which are a little undignified in a Journal which heretofore has commanded the respect of its subscribers and the profession. If this *new* proprietor expects the respectable portion of the profession to sympathize with him in his interested opposition to all Dental Patents, he will find himself somewhat mistaken. It cannot be possible that our profession will take a position before the world so antagonistic to every principle of justice, and so diametrically opposed to the policy of all civilized governments.

The granting of limited monopolies by government to inventors having proved itself to be the most effective means to develope the inventive talents of the nation, it has become the settled policy of all governments, and that government which has afforded the best protection to inventors in the right secured by Letters Patent, has made the greatest progress in civilization.

How any man having any regard for truth from facts that are within his own knowledge, can charge the AMERICAN HARD RUBBER Co. with any particular "urgency, manifested to sell rights," we cannot tell. More than one year ago, the Co. offered Office Rights for sale on terms within the reach of every Dentist in the country. In their circular issued at that time, they informed the profession that suits had been commenced against L. E. Christopher & Co., at No. 5 Bond st., N. Y., for infringing upon the Goodyear Patents, in the manufacture of what they called the *Coralite Base for Artificial Teeth.* Immediately after this suit was commenced, Christopher sold out to E. A. Z. Roberts, and he, Christopher, left the "Wood pile." Suits were then commenced against Roberts, he employed able counsel and the Court granted *permanent injunction* against him. Whether the case was "manfully contested," I leave for others to determine. The suits, however, prove not to have been withdrawn, as it was stated by the Register's *N. Y.* correspondent in the July No., that "*the defence made by Dr. Roberts to such motion was so complete, that the counsel of the Goodyear party abandoned his motion without argument.*" The facts as they have since transpired, show but too plainly the "*Nigger in the wood pile.*" Will the new *proprietor* inform the profession who this N. Y. correspondent was? there is little doubt if he would have the kindness to do so, it would be quite clear to the minds of many of his patrons, who have purchased pretended Gutta Percha rights, why it was that he was so anxious that his brethren of the profession should avail themselves of the facilities offered to purchase superior Gutta Percha, the quality of the article taken into account, being cheap; no smell of "*Fish*" there. The *Proprietor* seems to think that the "sweeping threat against all who do not bow down before the throne, does not savor much as if coming from parties feeling sure of their position." They are sure, through *Mr. Proprietor,* that Mr. H. B. Goodyear more than one year ago gave "Notice to the profession that all persons using said patented process, or material without a license from him, or those holding a license under him, were liable for damages, and would be prosecuted to the full extent of the law." In July last the Co. issued a second circular, cautioning the profession against being misled by the false statements made by parties imposing upon the profession, by offering "superior gum at exorbitant prices."

The Co. have again and again warned the profession against infringing on those patents; notwithstanding, many have been deceived by the misrepresentations of parties having "Fish" to sell, which, if not disposed of soon, spoil on their hands, and hence the cry of "Nigger in the Wood pile." If the new *Proprietor* is opposed to all Dental Patents, very well, let him abstain from their use, he will soon find himself in the back ground; but this opposing a thing simply because somebody else discovered it, and at the same time using the very thing and abusing the inventor, is very much in keeping with a thief who breaks into your house, steals your goods, and then abuses you for not having your house furnished with better articles,—rather cool, that! Nobody is compelled by law to use a patented article, but they are compelled to pay if they do use it, and it is high time our profession came to an understanding in this matter. If we are a band of pirates, the world should understand it; if not, those few among us who boast of their piracies upon the rights of others, should be punished; the cry of "Nigger in the Wood pile" is a "dodge" that won't take much longer: the gauze is rather thin, *Mr. Proprietor*, rather thin.

Now, *Mr. Proprietor*, I advise you in the spirit of true friendship to try honesty a little while; come out of the "Wood pile," and if you don't find it to work better, we will acknowledge ourselves to have been humbugged, when we embraced the idea that "honesty is the best policy."

B. W. FRANKLIN,
640 Broadway, N. Y.

A NEW METHOD OF MAKING METALLIC CASTS.

BY C. SILL.

Much time and trouble may be saved by the following method:—Take the impression with plaster in the usual manner; when the plaster has sufficiently hardened, remove from the cup; form the air-chamber, and trim the upper part for inverted edge, if desired. Now with a strip of sheet iron two and a half inches in width, and long enough to embrace the impression, overlapping one-half inch or more, (bent to suit the case,) fine annealed wire should be applied, firmly binding the two together, the impression forming the floor; then with a plaster batter lute up the holes remaining, allowing the plaster to taper towards the top of the cup. In this way a good shaped cast is formed, easily drawn from the counter model. Expose the piece to a moderate heat, until the water is driven off; now pour the zinc, and with a spatula stir till bubbles cease to rise from the gas in plaster, giving it an oscillatory motion.

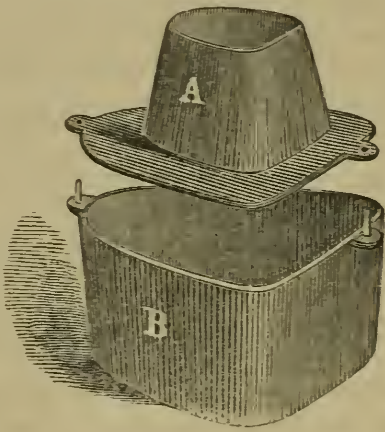
PITTSBURGH, *Dec.* 26, 1859.

EDITORIAL AND ITEMS.

WE have been presented by Dr. W. F. Stoddard, New London, with a Moulding Flask, of which the following is a representation. We think them worthy the attention of the profession. Dr. S. writes in relation to them as follows: "I made them two years since for the purpose of saving much of the labor of preparing the cast, and to obviate the difficulties occasioned by the shrinkage of the metal.

A is filled with plaster, which is allowed to set, and kept for use. The impression is filled just to cover all parts of the mouth.

But little trimming is necessary. This plaster model is placed upon the plaster in A, before prepared, and sand packed in B. The plaster removed, the metal is poured FIRST in the lower portion of the flask, and *allowed to cool partially.* Falling but a short distance upon the sand, it is not liable to deface it.



The upper portion is replaced and filled slowly.

The result is, that the lower part of the casting, representing the mouth, being cooled and stiffened by the delay and contact with A, is not affected by the shrinkage of the remaining part which takes place *from* the more liquid part. This will be made sufficiently obvious by a glance at the cast I send, which is taken from those in use at my laboratory.

After painting with whiting the casting *in* the flask A, filling the interstices between the zinc and flask, the lead is poured in B, and the operation is completed in less time certainly, and I think a more perfect manner, than by other methods."

QUESTION SETTLED.

By a circular received from the Am. Hard Rubber Co., we learn that the suit so long pending, and which has elicited so much interest in our profession, has been decided in favor of the Goodyear Patents, and the following decree issued by the U. S. Circuit Court:

U. S. Circuit Court, Southern District of New York, in Equity. Between Henry B. Gooyear, as administrator on the Estate of N. Goodyear, deceased, Complainant, *vs.* Edward A. L. Roberts, Defendant.

It appearing to the satisfaction of this Court, that the said defendant has infringed the rights secured to the complainant by Letters Patent, reissued to him on the 18th day of May, A. D. 1858, numbered re-issues Nos. 556 and 557: Now, on motion of George D. Sargeant, complainant's Solicitor, it is hereby ordered, adjudged and decreed, that a perpetual injunction do issue out of and under the seal of this Court, restraining and enjoining the said defendant, Edward A. L. Roberts, his Clerks, Attorneys, Agents, servants and workmen, from making, manufacturing, and selling to others any Plates and Bases for Artificial Teeth, or other articles which are made and manufactured of India Rubber or other vulcanizable gum, mixed with sulphur or any equivalent therefor, either with or without auxiliary ingredients, in the proportion of about from four ounces of sulphur to a pound of gum, and then subjecting such mixture of India Rubber or other vulcanizable gum and sulphur, or any equivalent therefor, to a high degree of artificial heat, substantially as described and claimed in the Letters Patent as aforesaid.

And it is further ordered, adjudged and decreed, that the cause be referred to Kenneth G. White, Esq., the Clerk of this Court, to ascertain and report the numbers of Plates and Bases for Artificial Teeth or other articles that have been manufactured and made according to the process patented as aforesaid; and also the number sold by the said defendant since the 18th day of May, 1858; and also, the profits which the said defendant has made or derived by the sale of said articles so made and manufactured as aforesaid, since the time last aforesaid; and upon the coming in and confirmation of said Report, that said complainant have a decree and execution for the amount found due to him, and also for the costs in the suit to be taxed.

Dated New York, October 2d, 1859.

A true copy, Kenneth G. White, *Clerk.*

We have received a copy of transactions from the American Institute, and the following report of the judges on dentistry of the 31st annual fair of the same:

No. 176, presented by Jones & White, is the best specimen of artificial teeth for competition.

In justice to other contributors, we would state that this specimen had no particular preference in point of finish or natural appearance over the specimens numbered 136, as both were very superior in style and finish, and highly creditable to the contributors. But the result of severe tests to which they were submitted, induces us to recommend case No. 176 as being entitled to the first premium.

No. 136, presented by Oram & Armstrong, is the second best specimen of artificial teeth submitted for competition.

No. 1012, by Dr. John Allen, is the best case of improved dentures exhibited for competition, (but entered too late,) a fact to be regretted, as the contributor, Dr. Allen, is justly entitled to the highest praise, not only as being the originator, but for having devoted many years of patient toil and study in perfecting that elegant and truly valuable style of work known to the profession as "continuous gum, on platinum plates," and the specimens submitted by Dr. Allen are probably equal, if not superior in artistic skill, to any mechanical dentures ever manufactured in this or any other country.

We would therefore most earnestly recommend this contribution to your especial consideration.

No. 320 is the best specimen of dental furnace, and the only one on exhibition. We think it a convenient and reliable article, and probably the best in use for dental purposes. We would recommend an appropriate expression in favor of the contributor.

No. 17, presented by Dr. Wm. C. Tracy, is the best specimen of carved block teeth submitted for competition, and your committee consider them the best they have ever had the pleasure of examining, and they would recommend that a silver medal be awarded to Dr. Tracy, fully believing that the superior elegance of his contribution justly entitles him to the same.

No. 148, by Warren & Banks, the best vulcanizing machine for dental purposes submitted for examination. We are of opinion that it possesses advantages which entitle it to consideration. We therefore recommend that a diploma be awarded to the contributors.

The following have been examined and are not recommended for premiums:

Nos. 71, 154, 212, 262, 277, 319, 360, 332, 452, 589, 651, 682, 886.

A. C. HAWES,
J. SMITH DODGE, } *Judges.*
T. H. BURRAS,

NEW YORK, *Oct. 26th*, 1859.

EXPERIENCE WITH A NEW SET OF TEETH.—We have been very much amused in listening to an acquaintance of ours when describing his experience with a new set of teeth. He remarked:

"I have had all my teeth pulled out, for to tell the truth, I think they have been a curse to me always rather than a blessing. Now in their place I have had false ones put in, and I must tell you my experience with my new masticators. I felt, when the "set" was first put in, as though I had a couple of wheel-barrows full of paving stones lying around loose in my mouth, and it seemed as if they were going to be spilled out at every motion. The first day I waited till every one had done their dinner, not daring to make any exhibition of my teeth, and run the risk of their dropping on the table.

Well, I chewed a little and stopped, and finally went to my room and laid the darned things on the back part of an upper shelf, thinking they were no go. The next day I tried them again, but with better success, and after this I would carry them in my pocket, occasionally trying them on, and every time experiencing some new emotion. One day they would feel as much like a great horse shoe, with nails in, as anything else. Some of my experience was very comical They served me so many times, and I was getting tired of my bargain; but by perseverance I have become used to their ways, and now they cannot get away from me, as I know just how to manage them, and how to bite on them, and bless from the bottom of my heart the inventor of false teeth."

In presenting the January number of the NEW YORK DENTAL JOURNAL, as usual the editors must apologize for its late appearance. Various causes delayed it, until it was thought advisable to wait for the reports of the western associations. These we are now enabled to present, as also an article read before the late meeting at Detroit. We are thus enabled to give our readers, with our best wishes for a happy New Year, a varied and interesting number.—EDS.

Letters from the west, from one of the editors of this Journal, speak *feelingly* on the subject of his late visits among the profession. In his attendance on the Pennsylvania Dental Association at Philadelphia; the Pittsburgh Dental Association; the Michigan State Dental Association, and the Indiana State Dental Association, he has been greatly pleased by the high standard of excellence reached in the profession, and the general intelligence, as well as sociality, prevalent among them.

We desire to call the attention of our friends to the fact that the present is the season for paying up all subscriptions, and for adding new ones; we particularly request their influence in and about New York City and State, where our circulation is by no means as extended as it should be.—EDS.

THE

NEW YORK DENTAL JOURNAL.

APRIL, 1860.

THE RECENT ADVANCES OF DENTAL SCIENCE.

[British and Foreign Medico-Chirurgical Review, January, 1860.]

1. *On the Development of the Teeth, and on the Nature and Import of Nasmyth's "Persistent Capsule."* By THOMAS H. HUXLEY, F.R.S. ('Quarterly Journal of Microscopical Science,' No. 3, pp. 149, 164.)
2. *On the Structure and Mode of Formation of the Dental Tissues according to the Principle of "Molecular Coalescence."* By GEORGE RAINEY, M.R.S.C., and Lecturer and Demonstrator of Surgical and Microscopical Anatomy at St. Thomas's Hospital. ('Quarterly Journal of Microscopical Science,'' No. 28, pp. 212, 225.)
3. *A System of Dental Surgery.* By JOHN TOMES, F.R.S., Dentist to the Dental Hospital of London, and to the Middlesex Hospital. With 208 Illustrations. —*London*, 1859. 16mo., pp. 583.
4. *Transactions of the Odontological Society.* Vol. I. *London*, 1859.

IN no department of the profession has more rapid progress been made within the last quarter of a century, than in that of dental surgery. Dentistry has recently undergone a total reorganization, and the Legislature has recognized the importance of the subject by authorizing the College of Surgeons to establish a Board of Examiners on Dental Surgery, and empowering that Corporation to grant dental diplomas. It may not be out of place briefly to pass in review the successive steps which have mainly contributed to this result, the particulars of which are not likely to be familiar to many of our readers.

About sixteen years ago several dental practitioners, recognizing the necessity of greater freedom of intercourse between members of their branch of the profession than then existed, attempted to establish a society on a basis similar to that of the other medical societies of the metropolis, viz., for the purpose of reading papers, and the discussion of professional and scientific subjects. The objects of the proposed society, however, were not to be limited to the above purposes : the necessity of some standard of qualification for members of this branch of the profession was generally admitted, and it was contemplated therefore to make such society subservient to the attainment of a dental qualification. But though, owing to the want of unanimity so necessary for the accomplishment of the above objects, and the difficulty of organizing such a society, the attempt was unsuccessful for the time, it must be looked upon as foreshadowing what has been subsequently accomplished.

Perhaps no circumstance can more clearly testify to the increasing importance of the subject, than the addition within the last few years of a dental surgeon to the medical staff of most of the London hospitals. Twenty years ago, there were not more than two of the hospitals at which the necessity of a dental surgeon was recognized ; at the present day, so fully is this want admitted, that there is no hospital, and scarcely a dispensary, without such an officer, while lecturers on dental surgery have been appointed in the majority of the medical schools.

The necessity of a recognized qualification becoming yearly more manifest, a memorial upon the subject, signed by several eminent dentists, was, in December, 1855, addressed to the President and Council of the College of Surgeons, requesting that a special examination in the department of Dental Surgery might be instituted.

In the autumn of the year 1856, it became apparent to dentists that some organization among themselves was necessary. It would be tedious to give the particulars of the long controversy which ensued ; suffice it to state that it resulted in the formation of " The Odontological Society " and " The College of Dentists." Each body professed an identity of purpose, viz., the elevation of the dental practitioner, and each agreed that education and examination offered the proper method of attaining the desired end, but a difference of opinion arose as to the body from which the diploma of qualification should emanate. The Odontological Society proposed a dental diploma from the College of Surgeons, in accordance with the views of the memorialists upon the subject; while the College of Dentists contended for the establishment of an independent institution, which should grant the requisite diploma. Towards the close of the year 1857, the two societies, feeling that their antagonism was prejudicial to their general and common interests, each appointed delegates to arrange the preliminaries upon which a union could be brought about. The terms of amalgamation being settled, and agreed to by their respective Councils, it only remained to submit them to the general body of the members of each society. They were first submitted to the members of the College of Dentists at a meeting held on January 8th, 1858, when the terms agreed to by the delegates were rejected. Having now no alternative but to pursue the course they had commenced for the attainment of their object, the Council of the Odontological Society, at a special general meeting held on March 19th, 1858, for that purpose, issued a "Report" to the members of the steps they had taken, and the correspondence they had carried on with the Council of the College of Surgeons upon the subject of a dental diploma from that Corporation.

After the reading of the report, the Society, approving the course taken by the Council, unanimously resolved to establish a school for teaching those branches of science appertaining peculiarly to the practice of dental surgery which are not taught in the existing medical schools; the members empowered the Council to open such school so soon as circumstances would permit. Pursuant to this resolution, the Council requested the coöperation of several members of the College of Dentists in the formation of a Committee for the establishment of a dental hospital as a preliminary to a school. This hospital, called "The Dental Hospital of London," situated at No. 32 Soho-square, the premises formerly occupied by the Linnæan Society, was opened towards the close of the year 1858, and is now in a flourishing condition; a school in connexion therewith, called "The London School of Dental Surgery," has been established in conformity with the requirements of the Dental Charter. A school has also been organized by the College of Dentists, called "The Metropolitan School of Dental Science."

At the time the memorial was addressed to the President and Council of the College of Surgeons, it appeared that it was not in the power of the latter body to institute a special diploma in dental surgery; a clause was therefore introduced into the New Medical Act, which passed through Parliament in the Session of 1858, conferring the requisite power upon the College of Surgeons, and authorizing that

Corporation to undertake the regulation of the education of future dentists; in virtue of this power, embodied in a special charter, the dental diploma has been established.

A journal devoted exclusively to subjects connected with dental surgery, and affording a medium of communication between members of this branch of the profession, must be looked upon as a prominent feature of the present era. The first number of 'The British Journal of Dental Science,' a monthly periodical, appeared in July, 1856. This was followed by 'The Quarterly Journal of Dental Science,' which in January, 1859, was also changed into a monthly issue, under the name of 'The Dental Review.' Both journals are of a scientific character, and well conducted. The former is supposed to express the sentiments of the Odontological Society, the latter is considered the organ of the College of Dentists. A volume of Transactions has been published by the Odontological Society, containing several papers of interest, which bear ample testimony to the position which the Society has already attained, and may be taken as an augury of its future beneficial influence. Having premised these brief remarks on the politics of dentistry, we now turn to its more important scientific features.

The publication by the late Mr. Alexander Nasmyth of the views of the Swedish and German physiologists on the structure and development of the teeth, in 1839, followed by Mr. Owen's admirable work, "Odontography," may be considered as the commencement of the modern era of dental surgery. Mr. Tomes' elaborate course of lectures on the subject, however, delivered at the Middlesex Hospital, first published in 'The Medical Gazette,' and subsequently in a volume, entitled 'A Course of Lectures on Dental Physiology and Surgery,' laid the foundation of scientific practice, by establishing a line of treatment of the diseases of the teeth based upon physiological and pathological knowledge; and indeed to Mr. Tomes is due the credit of having written the first account of the structure of the teeth in this country, furnished in a paper describing his researches, and read before the Royal Society, June 21st, 1838, entitled 'On the Structure of the Teeth, the Vascularity of those Organs, and their Relation to Bone.'

The researches of the Swedish, German, and English physiologists on the structure and development of the teeth, are given in the fifteenth number of this periodical. The authors therein quoted are, Fraenkel, Raschkow, Müller, Retzius, Tomes, Owen, Goodsir, and Nasmyth.

They generally agree in the correctness of the conversion theory—viz., that the elements of the pulp are transformed into dentine, that the enamel is formed from the enamel organ or enamel pulp, and the cementum from the capsule. The subject has subsequently been investigated by Mr. Huxley, who has arrived at conclusions different from those of the above-named authors, and we now proceed to give an outline of his views.

For the purposes of examination, Mr. Huxley takes the skate, the mackerel, the frog, the calf, and man, as accessible specimens of each of the great divisions of animals possessing teeth. In dealing, first, with the question, what are the structures concerned in the development of the teeth? Mr. Huxley states that there are two modes of their development—viz., that in which the pulp is never free, but from the first is included within the capsule, as in the mackerel and frog; and that in which the pulp projects freely at one period above the surface of the mucous membrane, becoming subsequently included within a capsule formed by the involution of the latter, as in the human subject. The skate offers a sort of intermediate stage.

He then gives an analysis of the developmental conditions in the mackerel, the frog, and the skate, the inference of which is, that in both the mackerel and the frog the papilla is wholly a process of the derm (or that which in a mucous membrane corresponds to it) outwards, while the sac is a process inwards of the same structure, and that the homogeneous substance, with its embedded nuclei between the two, corresponds with the epidermis or epithelium; he states that in the skate the follicle is not an involution of the derm, the papilla is a process of it, and the epithelium between the two becomes metamorphosed sometimes into a peculiar stellate tissue.

In tracing the conditions in man, Mr. Huxley states that a space filled with a fluid always exists between the inner surface of the capsule and the outer surface of the pulp—*the two are perfectly free from all adherence to one another*—and in addition to the above fluid is a more or less abundant whitish matter, which sometimes adheres to the one and sometimes to the other (Goodsir). A structureless membrane, the membrana preformativa of Raschkow (the basement membrane of Bowman), may be traced over the whole surface of the pulp, and in perfect continuity on the walls of the capsule—in fact, into its basement membrane. He then gives a description of the whitish substance between the basement membrane of the pulp and that of the capsule, and infers that from its structure and its relation to the above membranes, it is nothing more than the altered epithelium of those organs. It is the so-called "*enamel organ*" of authors.

Mr. Huxley then pays a tribute to the late Mr. Alexander Nasmyth, for having, as he thinks, published the first accurate and detailed account of this so-called enamel organ in his work, 'Researches on the Development, Structure, and Diseases of the Teeth,' 1849. After quoting the description, he concludes that in man, as in the skate, the mackerel, and the frog, the tooth pulp is a dermic process bounded by its basement membrane; that the capsule is an involution of the derm, bounded by its basement membrane, and that the epithelium of these organs lies between them, having in this case received the name of "*enamel organ*" from the supposition that the enamel was developed by the calcification of its elements. Mr. Huxley then points out that the "actinenchymatous" tissue (Raschkow) of the calf occupies a wide interval between the basement membrane of the capsule and the alveolar wall, and does not correspond with the stellate tissue of man, as has been assumed by all writers; but that the true homologue of the "enamel organ" in man, is in the calf a thin layer of elongated cylindrical epithelium cells, between the wall of the capsule and the surface of the pulp.

Mr. Huxley next inquires into the relation of the dentine, enamel, and cement, to the pulp, the capsule, and enamel organ, and states that neither the capsule nor the "enamel organ" takes any direct share in the development of the dental tissues, all three of which—viz., enamel, dentine, and cement—are formed beneath the membrana preformativa or basement membrane of the pulp. The prominent point of evidence adduced in proof of this assertion is the demonstration of a voluminous transparent membrane about 1–2500th to 1–1600th of an inch thick, which by the addition of strong acetic acid may be raised from the surface of the pulp in a human fœtus at the seventh month, beneath which, Mr. Huxley states, the ends of the enamel fibres may be very distinctly seen. Under a high power, the surface of the upper part of the ossified cap appears reticulated, the meshes being about 1–5000th of an inch in diameter, and the membrane exhibits innumerable little ridges upon its outer surface about 1–5000th of an inch in diameter. At its lower edge this membrane passes into the membrana preformativa—in fact it is the altered membrana preformativa itself. A membrane corresponding with that described in the human subject is also found in members of each of the other groups of vertebrata which possess teeth, presenting, Mr. Huxley thinks, correlative evidence of the correctness of his views. Mr. Nasmyth is again alluded to as having described this membrane under the name of the "persistent capsular investment;" but Mr. Huxley adds that he, like all who have succeeded him, misled by the supposed mode of development of the enamel from the enamel organ, imagined that as the "persistent capsule" was outside the enamel, it could be nothing else than the membrane of the dental capsule. Mr. Huxley then concludes that since this "Nasmyth's membrane" is identical, on the one hand, with the persistent capsule which lies external to both enamel and cement, and, upon the other hand, with the preformative membrane of Raschkow, or otherwise with the basement membrane of the pulp, it is clear that all the tissues of the tooth are formed beneath the basement membrane of the pulp—in other words, they are all true dermic structures, none epidermic.

Mr. Huxley asks, thirdly, what is the relation of the histological elements which enter into the composition of the soft parts to the dentine enamel and cement, which are formed from or within them? In entering upon this problem, Mr. Huxley denies the correctness of the conversion theory—viz., that the histological elements of the pulp become calcified and converted into dentine; and believes that the dentinal substance is deposited within the pulp beneath the membrana preformativa. This he proposes to call the "Deposition Theory." In refutation of the former (the conversion theory) Mr. Huxley adduces the absence of nuclei in young dentine, which he failed to discover, even when, by the use of strong acids, the calcareous matter was dissolved out; though those which exist in the pulp became much more distinct and even coarse in their outlines, the bodies which have been described as nuclei being, he says, simply lacunæ. Again, by the addition of a solution of iodine to the pulp, its nuclei are demonstrated by becoming brown, but the dentine under this agent remains pale. Mr. Huxley is more satisfied with this negative evidence, as in young bone it is easy to demonstrate the nuclei in the lacunæ by the aid of acids. He thinks the enamel affords still less evidence of conversion from a cellular structure; between it and anything which can be called a nucleated cell, it has on the outside Nasmyth's membrane, on the inner the layer of dentine, which in man is formed before it; and he points to the dermal teeth or plates on the upper surface of the head of the skate having as distinct a layer of enamel as those of the mouth, though in this case there is neither rudimentary capsule nor "enamel organ." In a morphological point, Mr. Huxley thinks the cement is homologous with the enamel; in proof of which, allusion is made to a section of a human tooth, the upper portion of the cement of which exhibits in places a very distinct striation resembling its perfect enamel. Again, the cement on the fang of a molar of a young calf which had not cut the gum consists of an external Nasmyth's membrane, internal to which three-fourths of the thickness of the layer are formed by parallel fibres 1–5000th of an inch in diameter, quite structureless, and completely resembling enamel fibres; these were softened and rendered pale by the action of caustic ammonia. On the root of the fang of the molar in front of this, which had cut the gum some time, and had come into use, the cement had the ordinary structure. In these teeth, the capsule, though closely connected with the outer surface of the fang, could be readily stripped from it, and then exhibited a layer of epithelium upon its inner surface, showing clearly that the cement was not derived from its ossification. Mr. Huxley concludes:—

1. The teeth are true dermic structures, formed by the deposit of calcareous matter beneath the basement membrane of a dermic papilla, or that which corresponds with one.

2. Neither the capsule nor the "enamel organ," which consists of the epithelium of both the papilla and the capsule, contribute *directly* in any way to the development of the dental tissues, though they may *indirectly*.

3. The histological elements of the pulp take no direct part (except, perhaps, eventually in the cement) in the development of the dental tissues, becoming either absorbed or being pressed in by the gradual increase of the latter; and the dentine is formed, not by ossification of the histological elements of the pulp, but by deposition of it.

Mr. Rainey has put forth another theory, viz., that the mode of calcification of the dental tissues is identical with that by which bone and shell are formed, viz., the principle of "Molecular coalescence," and that the dentinal tubules have no distinct parietes, but are merely spaces bounded directly by the dentine fibres and the partially coalesced dentine globules. He published his views 'On the Formation of the Skeletons of Animals and other Hard Structures formed in Connexion with Living Tissues,' in the fortieth number of this Journal. A subsequent communication was made by him to the 'Journal of Microscopical Science for July, 1859,' detailing his researches in special reference to the structure and development of the teeth. In tracing dental development Mr. Rainey states that, in a cusp in which calcification has made but little progress, a membranous border is distinguishable, extending from the lower margin of the shell of tooth substance; which, having the same relation to the calcified portion of a young cusp that the membranous edge of a flat bone has to the ossified part, he proposes to call the "membranous matrix of the cusp." It is situated between the enamel and dentine pulps, its surfaces being respectively in contact with the corpuscles of each, and its free margin lodged in the groove formed by their union, to which groove it is united by exceedingly fine connective tissue.

After the deposition of calcareous particles on it, this structure divides into two layers; one the membranous matrix of the dentine, the other, the membranous matrix of the enamel. It appears to be made up of very delicate flattened corpuscles of different shapes and sizes, but generally longer in the vertical than in the transverse direction of the cusp.

In speaking of the formation of dentine, Mr. Rainey says its first indication is the appearance of very minute and more or less scattered bright particles, like very fine particles of dust, on the inferior surface of the membranous matrix, a short distance from its lower border. These globules become arranged in lines, or globular masses, and by their ultimate coalescence the lines become fibres or rods of dentine. This process, says Mr. Rainey, is exactly the same as that which takes place in the calcification of the claw of the lobster. The spaces between the rods, or between the partially coalesced globules or granules, are the so-called dentinal tubules. In proof of the absence of parietes to the tubes, Mr. Rainey argues that, as the above named dusty-looking material—incipient dentine—always intervenes between the partially-formed tubes and the dental pulp, all the fluid which is contained in their interior must have first passed through mere interstices or spaces; hence if at this, the most important epoch of a tooth's formation, mere spaces have sufficed for the conveyance and supply of interstitial fluid to its substance, he does not see why parietes should be afterwards added to those spaces, as by such an addition a complex form of structure would be superadded to a simple one, after the tooth tissues had ceased to perform any obvious organic function ; thus this substitution of tubes with parietes for mere spaces, would come too late to serve any obvious purpose. Mr. Rainey thinks the shape of the spaces favors his views; he says that the rods, or fibres, are of a quadrilateral form, and assume all directions, from the pulp cavity to the external surface between a vertical and horizontal axis ; and that the spaces are formed at the conflux of every four, passing more or less deeply between each adjoining pair, and depending upon the degree of coalescence of contiguous rods. Now, if a section be made through such an assemblage of fibres and passages as above described, Mr. Rainey says the cut rods will present sections of various forms,—some will be nearly square, others diamond-shaped, and a third set linear, depending upon their several directions; and the spaces will partake of the same form, being at first more or less circular, and then becoming angular or arrow-shaped ; and where the rods are imperfectly formed, being made up partly of globular portions, the passages running between them will partake of the same form. Now if these rods had inclosed tubes of the form represented by some authors, Mr. Rainey maintains that their sections must have presented first circular areas, and then ovals, becoming gradually more eccentric until they ended in forming straight lines. Mr. Rainey is not disposed to recognize the appearance of rings with a dark point in the centre in transverse sections of dentine, as evidence of the existence of tubes. In refutation of such proof he adduces the structure of the siliceous cuticle of the common cane, which at the conflux of every three of the hexagonal blocks of silica of which it is composed, presents the same forms and appearances as have been described in the dentine, viz., the annular, arrow-shaped, and linear forms.

Mr. Rainey states that the particles of the enamel are known from those of the dentine by their parallel linear arrangement in contradistinction to the rows of globules and spherical masses of the latter tissue. These particles join, form continuous wavy lines, and coalesce into the ordinary form of enamel, in which all appearance of the antecedent stages becomes more or less obliterated. The fibres of newly-formed enamel soon show a disposition to break up into irregularly quadrilateral forms, but Mr. Rainey says he has never met with the regular hexagons described by some authors: he thinks that the explanation he has given of the mode of formation of dentine and enamel will explain the laminated character of these tissues, its distinctness depending upon the completeness or incompleteness of the coalescence of the dentine and enamel particles; the interglobular spaces about the extremities of the laminæ, and the contour lines or markings, and the absence of any appreciable spaces in some parts of all teeth, are, he thinks, also explicable on the same principle.

Mr. Rainey regards the osteo-dentine, or "crusta petrosa," as formed on a membranous matrix, directly continuous with and similar in structure to that of the dentine; and the primary particles are only to be distinguished from dentine particles by their subsequent arrangement. They coalesce in the same manner, but in place of taking a rectilinear arrangement they have somewhat of an arborescent form, the small spicular branches of which anastomose and inclose areolæ of a more or less circular form. These may be regarded as Haversian canals, lacunæ or canaliculi, and in the event of their containing vessels, must of course be considered as the former. This tissue being considered as bone, Mr. Rainey has called the vessels and epithelial corpuscles in contact with its matrix "the bone pulp," and thus the analogy between bone and dentine is preserved; the pulp cavity of a tooth corresponding to a true Haversian canal, the spaces between the dentine rods to the lacunæ, and the extensions of these spaces between uncoalesced portions of dentine to the canaliculi of common bone. The enamel presents similar analogies, but less obvious and striking.

In tracing the development of the dental tissues, Mr. Rainey says, "It is obvious that both chemical and physical effects have been produced; the formation of new compounds is a proof of the one, and the definite forms which have been taken up by their aggregated molecules are a proof of the other;" he believes that these effects are due neither to the sole influence of vitality, nor to the exclusive operation of physical forces, but that they are produced directly by physical and mechanical agency under the control of a general vital principle.

We now come to what we cannot but consider the most important and interesting work connected with the present subject. It is entitled 'A System of Dental Surgery,' by John Tomes, Esq., F.R.S., and consists of 583 pages, with 208 illustrative diagrams. Its character and merits will be duly estimated from the epitome of its contents which we now proceed to give.

The first great section of the work is devoted to the subject of "teething," which comprises about a third of the whole. Under this term the author describes the condition of the teeth and jaws at the time of birth, and traces the successive changes onwards, until the temporary teeth have arrived at maturity. To accomplish this object it became necessary to form a collection of young skulls, in which the different stages might be observed, no such series existing; the labor and ingenuity bestowed upon the subject reflect the highest credit upon this distinguished physiologist.

The author first notes the fact that the development of the hard tissues of a tooth is preceded by the formation of soft tissues, or tooth pulp, of equal size and form to the future tooth; also that both the forms and dimensions of the crowns of the teeth are unalterably fixed long before the jaws are sufficiently enlarged to admit of their ultimate and normal arrangement. The different degrees of development of the crypts in the maxillæ of a full-grown fœtus, and their relations to each other, are then given; also those of the articular process, the alveolar edge, the angle, the inferior margin, and the coronoid process of the lower jaw, and the zygomatic process of the upper jaw. The degree of calcification of the different teeth at the period of birth is also stated. The author next proceeds to describe the condition at two months, showing that a greater change has taken place in the jaw bones than in the teeth, and that this is more observable in the lower than in the upper jaw. The relative and respective growth of each process at three, six, and eight months is then most minutely described, as well as the periods in which development in the teeth during these ages is most active. In instituting a comparison of the relative changes which mark the growth, Mr. Tomes points out the necessity of adopting fixed points which are the least subject to alterations of position from which to make measurements. For this purpose he selects the foramen mentale, as its position may be assumed to undergo little or no change after birth. On the inner surface of the lower jaw, the tubercles for the attachment of the genio-hyo-glossus and genio-hyoideus are selected. The upper of the two pairs of processes are at all ages nearly on the same level as the mental foramina, a slight advantage in height being commonly in favor of the latter. An increase of an eighth of an inch from the symphysis to the mental foramen is shown between the fœtal and nine-months jaws in favor of the latter, which increase will be found to correspond with greater thickness in the antero-posterior direction, near the symphysis of the nine-months jaw; proving that the growth of the anterior parts of the lower jaw is produced by addition of bone to the anterior surface, rather than by any material increase by the development of bone in the fibro-cellular tissue which up to this period unites the two halves; development in the latter position appears to have its period of activity limited to intra-uterine life. After birth the process of growth in this direction is all but suspended until the period arrives for the osseous union of the two halves of jaw, when the action is resumed, the fibro-cellular tissue is replaced by bone, and all further increase at this point is then at an end. A fuller description is given of the jaws of a nine-months child in consequence of the specimen having attained that stage of development which immediately precedes the eruption of the teeth. The author dwells upon the fact of the growth of bone being the result of additions to its external surface in contradistinction to interstitial growth. He considers that the conditions of the alveoli, coincident with the progressive development of the teeth, have not attracted the amount of attention which the subject deserves. He has noticed and described very minutely the partial absorption of the walls of the sockets preparatory to the passage of the teeth through the gums, and although this is an important and necessary action for the liberation of the crown of the tooth from the socket, the author states that as far as he knows it has escaped observation altogether. After noticing the completion of the development of the enamel on the crowns of the central incisors, characterized by its smooth and polished surface, which succeeds the dull, opaque, and almost chalk-like character of the incomplete tissue, and after describing the exact position and degree of development of the other teeth at nine months, the author pursues the investigation with the same minuteness at the ages of twelve, eighteen, twenty-one, twenty-eight, forty, and forty-one months; and the changes in the maxillæ, and development of the teeth at those respective ages, are fully delineated.

The explanation of the changes in the angle of the jaw at forty months deserves especial notice. The mental foramen being maintain-as the fixed point of measurement, it is demonstrated that the increased depth of the jaw has been obtained by additions to the alveolar edge of the bone. If equal additions had been made to the lower border, the relations between the body and the rami would have been maintained, but with the rapid growth of the alveolar margin, the angle formed by the two divisions of the jaws has become changed; the rami have been elongated, but their growth has been gradual, and not synchronous with the alveolar border, which has been subject to sudden accelerations. This condition, however, is compensated by the increased depth of the alveoli, and by the protusion of the several teeth taking place at different periods, in different parts of the jaws; if the whole of the temporary teeth were cut at the same time, and the growth of the alveoli were equal throughout the whole line, the elongation of the rami must assume a sudden activity, otherwise the front part of the mouth could not be closed. By the uninterrupted but comparatively slow elongation of the rami, and the rapid but successive growth of the front and back parts of the jaws, a relation of parts results, by which the whole series of teeth are allowed to be brought into contact simultaneously. The more acute angle of the jaw of the forty-months subject as compared with younger subjects is intended to be confined to the alveolar margin; but the angle formed by the junction of the lower border of the body of the jaw, and that bounding the posterior portions the rami, will be found to be more obtuse, hence preserving at these points a greater similarity to the younger jaws, and the condition is maintained so long as the jaw continues to increase in length. At four years and a half, the author assumes primary dentition to be completed.

In discussing the subject of abnormal condition of the temporary teeth, *Irregularity of position and number*, with lateral union, are treated of. Under the head, *eruption*, the conditions of the soft parts are considered; and an illustration is given of a vertical section through a decalcified lower jaw of a nine-months fœtus, passing through one of the developing teeth, and exposing the different tissues in regular order, from the epithelium to the periosteum of the lower border of the jaw.

Attention is then paid to *Dentition as a cause of local and constitutional disturbance*, followed by a section on the *Relations of the temporary to the developing permanent teeth at the period when* *the former are fully formed.* The indications of the approaching change of the first for the second set are pointed out ; a series of illustrations is given on the subject of the irregularity in the position of the permanent during the existence of the temporary teeth, and the cause of such malposition explained. In speaking of the effects of disease in the temporary teeth on their successors, the author alludes to inflammation being caused by a temporary tooth spreading in a strumous subject involving a large portion of the jaw, and resulting in necrosis ; the teeth, whether permanent or temporary, implanted in the sequestrum are usually lost. Cases are cited in which portions of the jaw, including the temporary and the crypts of the permanent teeth, were lost; new bone eventually took the place of that which had been removed, and the jaw again became perfect: in several cases permanent teeth most unexpectedly made their appearance, suggesting the idea that the teeth as well as the bone had been reproduced. Mr. Tomes refuses to recognize the development of a second series of permanent teeth, and suggests an explanation of the phenomena. He first refers to the fact of dead being in all cases detached from living bone, by absorption of the layer of living tissue which connects the two : the apertures of the crypts are by the same process greatly enlarged, the connexion between the walls of the crypt and the sac of the developing tooth is in the normal state but a slight one, and this in the character of cases referred to may be rendered still more slight by the action of disease. Now, in the presence of the foregoing conditions, it is not improbable that the pulps of the permanent teeth remain attached to the soft parts, while the crypts included in the sequestrum were removed ; and if such were the case, the developing teeth might again be surrounded by newly-formed bone. The practical inference from this theory is, that in those cases where necrosis of the jaw occurs during the presence of the temporary teeth, the sequestrum should be allowed to remain until it is perfectly detached both from the contiguous bone and soft parts, and that its removal should be effected with the least possible injury to the latter ; so that the permanent teeth, if not destroyed by the disease, may be placed under the most favorable circumstances for their future growth and evolution.

In the section treating of the *Shedding of the temporary teeth* considerable attention is bestowed upon the absorption of their fangs : the notion of absorption being caused by the pressure of the growing permanent teeth is only noticed to be discarded, and several conditions relative to absorption are alluded to, as having hitherto escaped observation. In absorption of teeth the same characteristic surface is seen as that shown by bone when undergoing a similar action—viz., a surface full of deep indentations, as though they had been made by a sharp piercing instrument with a semicircular extremity. The surface acted upon has an irregular festooned outline, and closely applied to this surface a cellular mass is found, which is but slightly adherent. The microscope demonstrates the structure of this peculiar organ. The surface is made up of peculiar multiform cells, each one being composed of several smaller cells. The relation of the more superficial cells to the wasting surface of the dental tissues is peculiarly interesting. The surface of the papilla is closely applied to the wasting surface of the tooth, and the individual indentations correspond to and are occupied by these large cells; below the surface the papilla is made up of ordinary nucleated cells and free nuclei, similar to those contained in the superficial compound cells, while at and near the base the tissue assumes the characteristics of developing fibrous tissue. If a tooth which has lost its fang be carefully removed, we shall find remaining in its place the growing papilla, corresponding exactly in size and form to the surface from which it has been separated, and this separation may often be effected with so little injury that no blood appears upon its surface after the operation, although the organ is highly vascular and readily torn. Laforgue and Bourdet recognized the presence of the absorbent organ, but supposed it to exhale a fluid capable of dissolving the roots of the temporary tooth. In further refutation of the absorption of the fangs of the temporary teeth being caused by the permanent, Mr. Tomes mentions the fact of the occasional complete absorption of the fangs of the permanent teeth themselves; also that of the temporary teeth occasionally maintaining their place to the exclusion of the permanent ones, which are then kept within the substance of the jaw, or appear in some unusual position. Absorption once commenced may not only be suspended, but development may take its place; the excavated surface of the dentine, cementum, and enamel may be covered with cementum, following all the irregularities of the former tissues, and closely united to them. This may itself again be absorbed; the process of absorption may be again suspended, and development be renewed; in fact, wasting and reparation may alternate until, by the preponderance of the former, the tooth is shed.

In speaking of *The eruption of the permanent teeth,* the author states that absorption of the coronal portion of the crypt takes place to admit of the passage of the tooth. The comparatively large size of the crown as compared with the neck or root necessitates a breadth of socket during the period both of development and of evolution far greater than is required for the implantation of the fully emerged organ; hence a tooth at this stage of its progress can be readily moved from side to side by moderate pressure, and very slight mechanical obstruction will turn it either into or out of its normal position. The crowns while within the jaws are placed in an uneven line, and this irregularity would become permanent if all were to make their appearance through the gums at the same time. The evolution of the permanent teeth individually and the coincident conditions are then described in the chronological order in which they usually appear.

The *Development of the alveolar processes* in connexion with second dentition is then treated of, and their synchronous growth with the teeth demonstrated, after which the *Growth of the maxilla during second dentition* is examined, and a series of measurements given; the result of which is to show that, taking the spinæ mentales as the points of measurement, the depth of the jaws below the upper spinæ is doubled between the ages of nine months and seven years, and that after the seventh year but little change takes place at this point in respect to depth, while the parts above the spinæ mentales, during the same period, increase from 4-12ths to 10-12ths of an inch, the maximum being attained by the fourteenth year. The mode of growth is also referred to—viz., by subperiosteal development upon the pre-existing bone.

Under the head of *Irregularity of the permanent teeth,* the various positions which the teeth assume, and the mechanical means resorted to for their reduction, are very fully treated of. The causes of these abnormal conditions are traced out, and the consequences shown of the prolonged infantile obliquity of the ramus of the lower jaw into the adult period, and the premature rectangularity of that process, characteristic of more advanced life; also those of excessive and deficient alveolar development. The absorption of bone, caused by moderate pressure constantly maintained, is demonstrated by the effect on the sockets of the teeth of the mechanical means for reducing irregularity; and the tendency of teeth whose position has been altered by pressure to return to their former positions on the removal of the mechanical restraint for keeping them in the newly-acquired position, is referred to absorption, proceeding more rapidly than development of bone. In studying the causes which produce the malpositions in which the whole of the anterior teeth are involved, the author insists on the necessity of the investigation being commenced prior to the eruption of the permanent teeth. Mr. Tomes denies that irregularity of the permanent teeth is caused by the removal of the temporary organs, and maintains that the contraction of the jaw is not a consequence of such practice. On the other hand, he thinks that the persistence of the first may, and frequently does, interfere with the outward progress of the second set. The abnormal position which each individual tooth may assume, and its treatment, are then given; cases are quoted, showing that apparently insurmountable obstacles may be overcome by ingenuity and perseverance. In the enumeration of the singular positions in which teeth are occasionally found, some are more curious than instructive; for example, an instance is mentioned of the third molar in the lower jaw being situated between the coronoid process and the condyle, the crown reaching nearly to the levil of the signoid notch; other cases are mentioned in which the same tooth is directed with more or less obliquity inwards; others again, in which the position is horizontal instead of perpendicular. Irregularity from transposition of permanent teeth generally affects the canines, which may either be placed between the lateral and central incisors or between the bicuspids. The position of the canine of the upper jaw is during the period of development so much above the adjoining teeth, that any irregularity in the growth of the neighboring parts of the alveolar ridge, or of its contents, may throw it either in front of the lateral or behind the first bicuspid tooth.

Under the head of *Irregularity in number of the permanent teeth*, it is remarked that excess is more common than deficiency. The supernumerary teeth may be situated in either jaw, though more frequently in the upper than in the lower, and in every part of the alveolar arch; the neighborhood of the incisors, however, is their ordinary position. In form, they may either resemble these of special members of the normal series, or may assume somewhat irregular conical shape, sufficiently characteristic to be at once recognized as supernumerary teeth. To the former class, the author suggests the term supplemental, in contradistinction to that of supernumerary. The characters of the latter are then described. In treating of *Irregularity in the forms of the permanent teeth*, instances are given of the excessive or diminutive size occasionally met with; others, again, in which the special form of a member of the series may be altogether lost, so much so that the mass representing it would scarcely be suspected to be a tooth. A case is mentioned in which the second molar of the lower jaw was represented by an irregularly flattened mass composed of enamel, dentine, and cementum, thrown together without any definite arrangement; and another of an upper tooth in which a cavity is formed external to the pulp cavity which communicates with the surface of the tooth, and which is lined with a thin layer of somewhat imperfectly developed enamel. Where one of the series is imperfect, the author considers that such imperfection must be attributable to a local cause, such as the prolonged existence of a gum-boil in connexion with a temporary tooth; or the encroachment of a neighboring tooth upon the formative pulp may lead to the formation of a dwarfed and misshapen tooth.

Interrupted development of the dental tissues is stated to arise from a constitutional, and not a local cause, and to be the characteristic of the condition of system at the period the imperfect portions were formed. The characters of both enamel and dentine under this condition are explained as revealed by the microscope. In such cases, the temporary teeth have nothing to do with the character of the permanent. Allusion is made to a condition described by the author under the head *Dilaceration*, in his "Lectures on Dental Physiology," the result of displacement of the calcified portion of a tooth from the tissues which were instrumental in its production, the development being continued after the normal position of the calcified part had been lost. In such cases, the dental tubes are greatly bent or disturbed in their course at the point of injury. The relations of the enamel, the dentine, and of the cementum are, also, interfered with at a corresponding point.

We pass over the author's remarks on the number and size of the roots, to consider the union or germination of contiguous teeth, the next subject treated of. A distinction is drawn between cases of congenital union which must have been effected through the medium of their respective pulps prior to the development of the teeth themselves, and those in which teeth placed in close apposition become united by the large development of cementum (exostosis) consequent upon disease.

Under the head of irregularity of the permanent teeth, the last subject treated of is *Irregularity in the period of their eruption.* The teeth most subject to it are stated, and an inquiry is made into the condition of the teeth themselves at the period of eruption, also into the nature of the process of eruption in these exceptional cases. This is the last subject treated of under the head of *Teething*, which concludes one division of the work. As will appear, the consecutive changes in the teeth and jaws, which in the healthy subject keep pace with the general growth of the body, have to some extent been traced, and the results which are entailed when the development of those parts is interfered with pointed out.

The second division of the work begins with an account of the dental tissues. Commencing with the enamel, the author combats Mr. Huxley's views with regard to its development, and proves to demonstration the conversion of the columns of the enamel pulp into the fibres of the perfect tissue. The author believes that each column is composed of a delicate sheath, in which are enclosed one or more nuclei, the interspaces being occupied by transparent granular matter: he points also, as corroborative evidence of the correctness of the conversion theory, to the fact of the columns of the enamel pulp being similar in size to the developing enamel fibres, also to the position and direction of the one having that which will be assumed by the other. Mr. Tomes asks why it is that we have cohesion at the point of junction of the columns and fibres, when the columns above and the fibres below so readily separate from each other, and from the coherent part (the so-called membrane). He suggests a chemical solution of the question, and thinks that this part may have undergone a chemical change preparatory and necessary to calcification, and that it is thereby rendered cohesive; he considers, however, that inasmuch as the demonstration of the so-called membrane is only possible by the means of reagents, its very existence must be considered equivocal. A full description is then given of the development of the enamel.

The principal point of interest in reference to the dentine, is the permanent occupation of the tubes by a soft fibril, which, after passing from the pulp into the tube, follows its ramifications. The mode of procedure by which Mr. Tomes made this discovery is then explained;

and two illustrations given,—one, showing the fibrils extending from the edge of the dentine; the other, showing the fibrils in connexion with the pulp, after the dentine has been removed; also the fibrils passing from the pulp into the tubes of the dentine, and emerging on the surface of the latter tissue. These fibres the author has traced into the enamel; he expresses a doubt whether they are tubular or solid, and is unable to decide on the manner in which they terminate in the pulp. Their recognition however, he thinks, explains why, under certain circumstances, dentine is susceptible of pain, while under other conditions the sensitiveness is lost. That the dentine owes its sensation to the presence of the fibrils, Mr. Tomes thinks cannot be doubted, seeing that if either connexion with the pulp be cut off by the destruction of the latter, all sensation is at once lost. The greater degree of sensitiveness observable in the dentine below the enamel—that is, at the point of ultimate distribution of the tubes, and consequently of the fibrils—may, the author thinks, be fully accounted for on the supposition that the latter are organs of sensation, and subject to the same laws as nerves of sensation, the highest sensibility of which is confined to their terminal branches; it is supposed, however, that fluids may and do pass through or by the side of the fibrils, and that when these become calcified near the surface of the dentine, the hardening materials must have been derived from the pulp. Thus the fibrils are subservient not only to sensation, but are also the channels by which nutrition is carried on in the dentine. It is suggested that the absorption or diminution of the pulp, in order to give space for the developing dentine, may correspond with that process by which the tissues of a temporary tooth disappear before the growing papilla. An illustration is given of the dentinal cells adherent to the developing dentine, and the continuity of the calcified and uncalcified tissues clearly shown. Another drawing shows these cells detached, and it is demonstrated that under certain conditions of caries the formative cells, the outlines of which had been perfectly obliterated by calcification, are, during the progress of disease, again rendered apparent. The author appears to favor Mr. Rainey's views on the subject of calcification.

The subject of caries is very amply discussed, together with all the practical questions of operative dentistry which it involves. This section gives us a satisfactory impression with regard to the advances in the scientific and manual branches of dental science, but it need not now detain us.

We pass on to the next subject which occupies our author's pen, and to which he devotes eighteen pages,—viz., *Dental Exostosis.* The disease is defined as "an addition of tissue normal in character, but abnormal in amount, to pre-existing tissues of the same structural character." In exostosis the cementum is described as thickened either locally or generally, the dentine in no case participating in the enlargement. Occasion is here taken to give a description of the structure of this tissue, and its analogy to bone is pointed out. The author states that a distinction must be drawn between those cases in which the affection is consequent upon pre-existing disease in the teeth followed by marked irritation of the alveolar membrane, and those in which it is developed independently of any other disease. Two cases are mentioned in which epilepsy was consequent upon diseased teeth, the most prominent feature being exostosis of the roots. It is concluded that extraction of the diseased tooth is the only remedy which can be depended upon. *Necrosis*, which is next examined, is defined as a loss of the vitality of a part or the whole of a tooth. The disease involves the death, but not necessarily the decomposition of the dead part, the tissues of which become dissolved, but are seldom softened. The dentine may lose its vitality in consequence of the pulp having been destroyed, and yet the cementum may retain its connexion with the periosteum. The connexion affords the means by which the tooth may retain its place for an indefinite period. Where additions are made to the cementum in this affection, as is often the case, there is a difference in its character and that of the original cementum. The affection may be confined in the first instance to the cementum, the dentine and pulp retaining their normal relations. Any attempt to restore vitality being useless, extraction is the only remedy. Under the head *Absorption of the roots of permanent teeth*, instances are mentioned, firstly, in which the whole or part of the root of a sound permanent tooth is absorbed without reference to the growth of an adjoining tooth, and secondly, those cases where a portion of a permanent tooth is absorbed to make way for the eruption of a neighboring tooth. Twenty-two pages are devoted to *Diseases of the pulp* and their treatment; the former are divided into irritation, and acute and chronic inflammation. Irritation, if long continued, has a tendency to produce calcification of the pulp. Acute inflammation of the pulp, which is generally caused by exposure, and irritation from foreign bodies, ends in the death of the pulp. Chronic inflammation of the pulp differs from acute in the less active character of the symptoms, and in the results to which it leads ; the pain is seldom long continued or very intense, and comes on generally at irregular intervals. The inflammation is limited to the exposed part, whereas in the acute form the whole substance of the pulp is affected. The exposed portion is changed in character, and becomes an organ of secretion, purulent or serous fluid being poured out from its surface. In this abnormal condition, pain is not a necessary consequence ; polypus of the pulp may ensue, which is not necessarily very sensitive, or the pulp may disappear gradually without pain.

The subject of the next chapter is divided into general inflammation of the alveolar membrane affecting the sockets of the majority of the teeth equally, and dependent for its origin upon a constitutional condition, and local inflammation involving the sockets of one or two teeth ; the latter is again subdivided into acute and chronic. In general inflammation a disposition is provoked to grind the teeth forcibly together, the pressure of the teeth into their sockets giving temporary relief; the teeth are very sensitive to pressure, and feel lengthened and loosened, and cannot be used in mastication without pain. The disease extends from the inner to the outer covering of the sockets and gums. In severe cases suppurative action is established, which may lead to absorption of the alveoli and loss of the teeth, or be succeeded by necrosis of the alveolar margin. The treatment must be addressed to the improvement of the general health, aided with local remedies, which are described. Acute inflammation is a consequence of pre-existing disease. The symptoms are,—slight uneasiness and tension ; pressure of the fang into the jaw gives relief, but the uneasiness returns on the pressure being withdrawn ; a dull heavy pain follows, and the tooth feels to be longer than its fellows. Alveolar abscess follows. The treatment consists in local bleeding, or extraction of the tooth, and when suppuration has taken place, in the liberation of the pus by the lancet. Chronic inflammation of the dental periosteum may be caused by a collection of tartar, or a ligature about the neck of a tooth, or pressure in an oblique direction by an antagonistic tooth; the obvious treatment is the removal of the exciting cause.

In the remainder of the work, the author successively discusses "Absorption of the alveoli," "Hypertrophy of the alveolar portions of the jaw," "Necrosis of alveolar processes," and a number of other subjects possessing much practical interest. We have no doubt that these parts, together with the admirable illustrations which accompany them, will prove as attractive, as they are instructive, to those who have recourse to Mr. Tome's work. The name of this writer would, from his antecedents alone, suffice to raise great expectations of any work coming from his pen, and such expectations will not be disappointed by a perusal of the volume before us. His labors and previous writings on the subject which he has so vigorously and successfully prosecuted, justly entitle him to the highest rank as a physiologist, and his last publication will add another to his already well-deserved honors. The early portion of the work is characterized by minutiæ of observation, the results of which are detailed with great ability and clearness. The commencement of the second part treats as fully of the structure and development of the teeth as would be consistent with the character of a manual, while opportunity is taken to communicate the anatomical and physiological discoveries made by the author since the publication of his former work. The remainder of the volume is eminently practical, constituting a text-book to which reference on every point of practice may readily be made, thus supplying a want which has been long felt.

The whole work is most carefully got up in every respect, and it is impossible to speak too highly of the admirable manner in which Mr. Bagg, the artist, has performed his share in the work.

ON NECROSIS OF THE MAXILLARY BONES,

AND THE DIFFERENT MEANS EMPLOYED TO REPAIR THE LOSS OF SUBSTANCES, PARTICULARLY AMBER AS THE BEST SUBSTANCE FOR THE PURPOSE, AS MADE BY DR. G. DIEFFENBACH, DENTIST, NEW YORK.

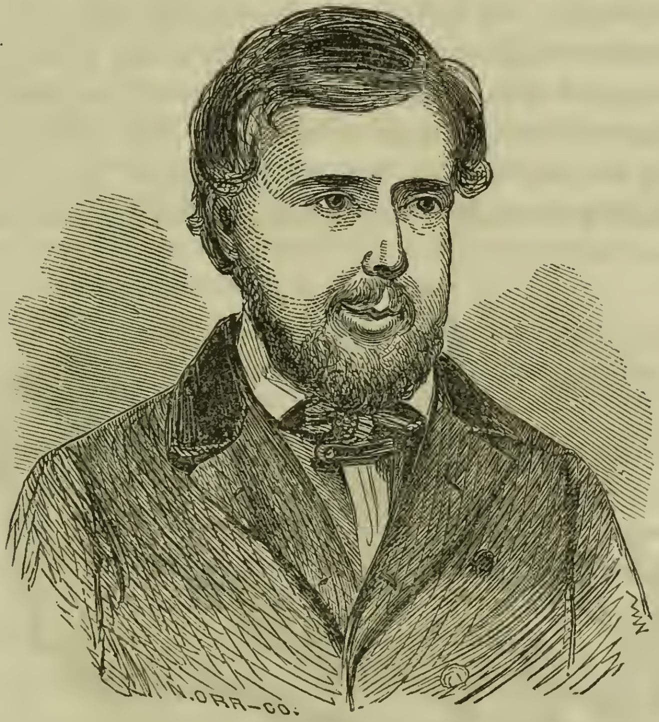
Communicated by Dr. L. D. Radzinsky.

Necrosis of the Maxillary Bones is an affection of very common occurrence of late years, owing to the great consumption of friction or lucifer matches, the manufacture of which requires large establishments, employing a large number of operatives of both sexes. It is well known that in such a manufactory the atmosphere is impregnated with the fumes of phosphoric acid gas. Now it has been proved that such a gas, coming in contact with exposed portions of bone, would produce an inflammation, which is supposed to commence in the periosteum, thereby destroying the nutrient vessels; and the bone thus becoming diseased, after a certain space of time the parts will become swollen, painful, and present all the characters of an accute inflammation. It has been proved by several cases that have come under my observation, that in every instance the patients had had some operation performed in the mouth—either a tooth had been extracted, or some deep scarifications made—and had been to work immediately after; exposing themselves to the influence of phosphoric acid gas. Generally the first symptoms come on insidiously, the patient describing the sensations produced as a sort of benumbing not only of the part affected, but also as if the bone were paralyzed by pressure produced all over its surface. These symptoms in the course of three or four months will disappear, and give place to a sort of stinging or prickly sensation, followed at intervals by sharp and acute pain, which is increased by pressure being made upon the part. At that time the face will have increased in size, and a feeling of fluctuation may be detected, indicating the presence of purulent matter between the periosteum and the bone; in some parts of the surface of the bone, hard bony exostosis will take place, covering generally the necrosed portion of the bone. From this time the disease makes rapid progress; the swelling has increased to an enormous size, followed by a great deal of inflammation; the patient becomes feverish and much depressed, until ulceration takes place in the soft parts, and several fistulas open and give passage to a most offensive purulent matter. The disease will keep on progressing, sometimes involving the neighboring bones, and the patient will sink from exhaustion, or, hectic fever taking place, the patient will die unless previously aided by art. Now let us see what art can do in such a case. Up to a few years back, operations had not been attempted upon the maxillary bones. It is to the exertions of Sir Astley Cooper, Velpau, Malgaine, and Gentoul, of Lyons, that we owe the last innovations and improvements in this branch of operative medicine. The treatment recommended by them is the removing, or exsecting, resecting, or producing total ablation of these bones, by first exposing the diseased bones by making incisions so as to cause as little waste as possible of the tegument, the bones being exposed by means of the trepan, chisel, gouges, etc. We remove all the necrosed portions, even sometimes removing the entire bone. As an example, I will give the following case :

Necrosis of Upper and Lower Jaw-bones.—Christian Sack, aged 21 years, born in Germany, match-maker by trade, admitted October 14th, '59. Doctor Parker, attending Surgeon. Patient was admitted in the hospital the 9th of November, 1858, for Necrosis of the inferior maxillary, caused by working in the fumes of phosphoric acid gas. Has been employed in the manufacture of fuse for matches : He was operated on the 16th November, '58, and nearly the entire lower jaw was removed ; he remained in hospital until December the 24th, when he was discharged, relieved. When discharged there was a slight swelling on the left side of the jaw, but which was not at all painful. During January he was again employed about the manufactory, though not in the fumes. In the course of eight or ten weeks the left side of the jaw began to swell, and gave him considerable pain; he however, con-

BEFORE INSERTION OF THE ARTIFICIAL JAW.

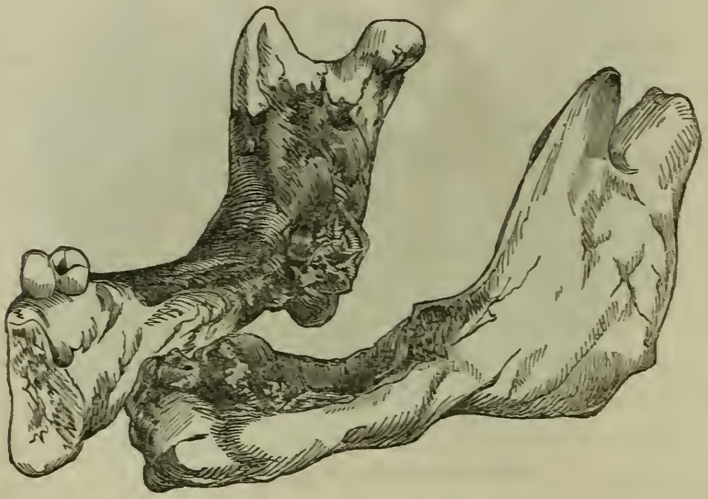
tinued to work at the manufactory until the latter part of May, when the swelling increased and the pain became so great that he consulted a Homœopathic physician, who did him no good!!! The pain continued, as did the swelling, and about the first week in August the patient applied flaxseed poultices, which in six or seven days was followed by the formation and discharge of matter through an opening which was formed at the angle of the jaw. Three weeks later, another opening formed about the first; the discharge of pus continued by these two openings; the pain, however, did not subside, and the patient finally came to the hospital this morning, October 14th, 1859, accompanied by Dr. G. Dieffenbach.



AFTER INSERTION OF THE ARTIFICIAL JAW.

Upon examination, openings are formed as above stated; a probe passed into them through detritus of bone in every direction. The face is much swollen, and it is feared that the whole upper jaw is involved in the disease. On examining the internal aspect of the mouth, the tissues of the mouth are much congested and swollen; several of the teeth have been from time to time extracted. The granulations around the openings present the ordinary appearances of diseased bone; the discharge is impure and very offensive. *Treatment.*—The openings were dressed with simple ointment. General health is good.

Oct. 21*st*, 1859.—Upon consultation it was decided to remove the necrosed bones. Accordingly the patient was etherized, and operated. The first incision was made one inch from the lobe of the left ear down to within half an inch of the symphisis menti; the tissues were divided to the bone, and the jaw sawn at about half an inch from the symphisis, on its right side, and the bone enucleated from the periosteum and afterwards disarticulated. On further examination, the upper jaw was found to be involved in the disease, and accordingly it was removed, leaving the molar bone and floor of the orbit intact; the nasal process of the left side was removed entire, and an incision was made from the angle of the mouth to the first incision, and the flap turned up to expose the parts; the flaps were neatly dressed and retained in their places by a pin suture; the other incisions being adapted by the interrupted suture, supported by adhesive plaster strips, with cold water dressings applied. Prescribed Magendie solution, gttxv.



NECROSED PORTION OF THE JAW.

Oct. 22.—Patient has not slept, even with another draught of the above medicine; immense swelling of the entire face; slight fever, pulse 112, quick; surface hot, bowels open. Ordered: Spts.

Mindererñ, ℥ ii, half an ounce every four hours. Beef tea and brandy at discretion.

Oct. 23.—Slept quite well last night; this morning pulse ninety, full; patient has no more fever, and the swelling diminishing rapidly.

Oct. 25.—Slept well, pulse normal, swelling rapidly subsiding, suppuration established, union taking place by first intention. Free discharge of matter and saliva; appetite good; patient takes beef tea and brandy.

Oct. 27.—The sutures all removed this morning save the pins; union firm; free discharge of pus from the suture's holes, mixed with saliva, and from the corner of the mouth; swelling much diminished, though there is still much of it near the angle of the mouth; the face is much disfigured; the angle of the jaw is dropping.

Oct. 30.—Patient continues to improve; suppuration is diminished; the pins were removed on the 28th; there is still a considerable swelling of the face; patient sleeps well, and does not complain of pain.

Nov. 4.—Face still swollen, some slight redness under the left eye. Has no pain, and expresses himself as feeling well.

Nov. 15.—This A. M. a slight blush is noticed over the swelling on the left side of the face, with a slight increase of heat; ordered to bed, and hot fomentation applied.

Nov. 20.—Swelling and redness mentioned in last note disappears; he is again up; very slight discharge remains yet; right side of the face hard, and the new jaw is forming.

Nov. 30.—General condition good; the discharge decreasing; the deformity is still considerable from the swelling and dropping of the left half of the face.

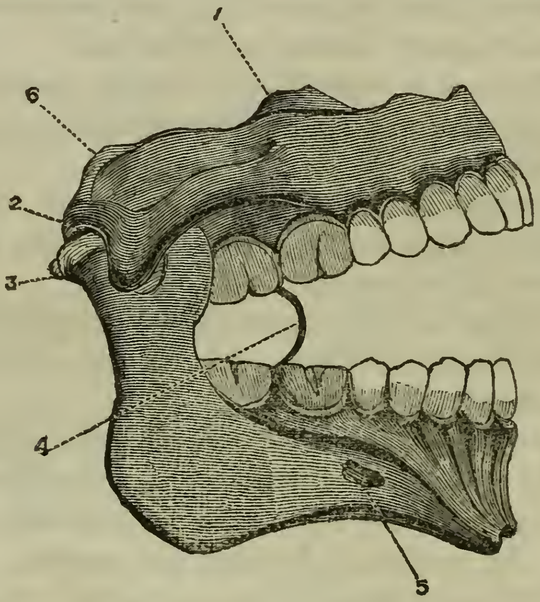
Dec. 4.—Patient is in good condition and health. Diet moderate.

Dec. 6.—The discharge from the wound has nearly stopped. General condition excellent, appetite being good and the secretions being natural. But moderate deformity has resulted, the left cheek being drawn a little downwards by its own weight. On examining by probing, a minute rough surface of bone was discovered.

Dec. 12.—Patient has remained in same condition, since the last note; appetite good; bowels open and regular; he gains health and flesh.

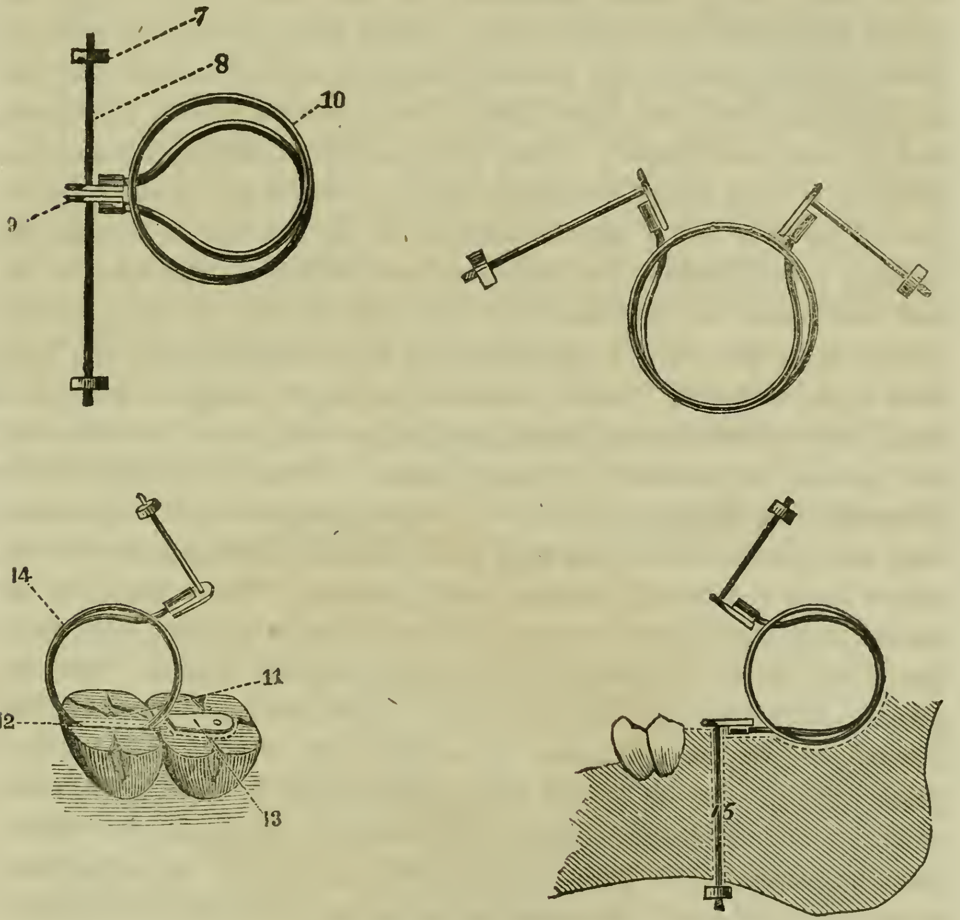
Dec. 21.—Patient was dismissed.

Dental Prothesis.—After such an operation having been performed, it takes at least from two to three months before any steps can be taken to replace artificially the diseased parts which were removed, for the following reasons: that we must allow time for a perfect cicatrisation to take place, so that the wounds will heal without leaving any fistulous openings and to favorise the secretion of new bony matter, said matter being secreted by the periosteum; and the periosteum being attached to the soft parts, which are composed of muscular fibres, it is evident that if any interference were to take place, it would produce contractions of these muscles, and thereby prevent a free and regular secretion of bony substances, these being the most necessary conditions to obtain a regularly formed new bone. It is well known that several artificial apparatuses have been made at different times in other and in this country to replace the losses sustained by the patient. But the greatest objections were that these apparatuses could not be made strong enough without being too heavy. The materials used being gold, silver, or platina, with the addition of gum teeth, blocks, or continuous gum teeth, it is evident that an apparatus intended to replace an under and upper maxillary bone could not be made of these materials without weighing at least from seven to ten ounces; and moreover, as it is necessary to have an artificial articulation, in order to confine the



ARTIFICIAL JAW.

anterior motion of the lower jaw, the artificial jaws which have been made had articulations constructed like hinges; these alone were too clumsy and heavy; the springs were spiral, having all the disadvantages of these springs. Now, knowing that all these objections existed, Dr. G. Dieffenbach offered to construct an apparatus made of the material which he patented two years ago. It would be well here to state, that the amber base with which it was made, is of about the same specific gravity as white wax; and its capability to be moulded upon the original cast of the mould, and its being able to be carved, and the natural color of the gums to be given to it, seemed to indicate it as the most proper material to be used for the purpose.



ECCENTRIC SPIRAL SPRINGS.

After a consultation having been held with the patient and his friends, it was decided that the amber base should be used as the most proper material in every respect.

The artificial jaws were made in the following way:

An impression was first taken of the upper and lower jaw, and an articulating model made afterwards in the usual way. Upon this model were made the artificial jaws. These were of wax, with common plain teeth set upon it, and made to articulate with those that were left on the right side of the upper jaws; then they were tried in the mouth, and perfectly articulated. After this was done, additional wax was added to it so as to build up in those places where the bones were removed, so as to bring out the features of the face and to sustain the cheeks; a small ramus and condyles were added to the inferior set, and were made to articulate into two small cavities in the posterior part of the upper plate in the same way as the inferior maxillary bone does in the skeleton. These cavities were large enough to allow of a small antero-posterior and lateral motion to take place; but after this, the springs necessitated an improvement. These were made as the accompanying Diagram will show. When the entire work was done in wax, and tried in the mouth, they were moulded and packed with the amber base, and finally hardened and finished. When placed in the mouth, they were found to answer all the expectations that were anticipated by Dr. G. Dieffenbach, the patient, and his friends. And the patient, after wearing them for a few days, was presented to Dr. Parker, to examine the piece of work. Dr. Parker was so well pleased with it that he invited the patient and Dr. Dieffenbach to assist at his usual clinique at the college of Physicians and Surgeons, New York, when he presented the patient to his class, particularly approving both the material and contrivance used to produce an articulation, which could at the same time allow any motion of the inferior jaw, without letting the condyles of the under jaw slip out of their sockets. It will here be well to state that the subject of this notice has worn his artificial jaws for three months to his entire satisfaction.

L. D. Radzinsky, M. D.

Description of Diagram.—No. 1. Body and base of the upper jaw fitting upwards and communicating with the nose. 2. Articulating cavity to receive the head of the condyle. 3. Ramus and process to prevent the jaws from articulating too freely in opening the mouth. 4. Dotted lines demarking the boundary of the amber base, it being dug out to allow the insertion of spring holders. 5. Body and base of inferior jaw. 6. Small process at the end of the Ramus, confined by an artificial Trigomatic process, to prevent too great a lateral motion of the apparatus.

Eccentric Spiral Spring.—7. Screw nut. 8. Stem, having a screw cut on it to allow it to be screwed to the jaw. 9. Spring holders, they being two little plates, forming a head to the tapped pins; they have on their under surface a small tube into which the ends of the springs are inserted. 10. Eccentric spiral springs. 11. Last molar tooth. 12. Amber base, into which the spring holders are fitted. 13. Plate of the spring holders. 14. Ends of the springs inserted into the tube under the plate No. 13. 15. Appearance of the spring holders as inserted and fastened to the Amber base.

DENTISTRY IN MEMPHIS.

BY N. M. SNEED.

Memphis for several years past (until within the last three or four) has been a city of adventurers. The population was changing every year, every month. Under that state of affairs the practice of Dentistry here was not very encouraging. The majority of the inhabitants were men seeking their fortunes, with but little regard for the comforts and luxuries of civilization; therefore the health of the organs under our consideration was little thought of, attended to, or cared for. When I first came to Memphis (January, 1856) I saw and felt the force of that state of affairs.

Being rather discouraged, I regretted leaving my native State (Georgia), and determined, against the advice and wishes of my friends here, to return to Georgia and locate myself in the city of Savannah. I spent the summer in Cherokee, Georgia, in its delightful mountain scenery. Visited Savannah in the fall. Not being altogether satisfied there, I concluded to hold off from anywhere for twelve months, and then determine. At the end of that time I found myself again in Memphis—a fixture, in my opinion and feelings, for life. Since then, our growing city has received accessions to its numbers creditable to any city. The encouragement I have received since my return has been very flattering. Now we have a host of signs displayed on our streets, of men who say they are willing, ready, or are practising dental surgery. In numbers, Memphis is largely represented: I wish I could say the same as regards *capacity.* But *I* think (and I have seen the handiwork of *all* in our midst, with a very few exceptions) the practising dentists of our city who are fully competent, and proficient in every branch of our profession, are lamentably few, considering the number. I am sorry to say it, but it is a *fact.* Too many have entered the practice (and I find that all over our land), dentists "about half made up," not having devoted to the study of the science that time and attention indispensably necessary to qualify themselves to be an honor to their profession. I would not advertise myself in any business, unless I knew, as well as thought, I was as well qualified to fill my post as the best lights in the profession.

I have made an effort in the last year to establish a State Dental Association in Tennessee. So far it has not been done, though I have encouragement sufficient from a large majority of the profession of the State, to all of whom I have written on the subject. I think we are greatly indebted to those associations throughout the United States for the great improvement and the high position our profession has attained in this country in the last fifteen years. I hope during the present year we will be one among a number of such institutions in our land, for I have not done with it yet.

There is one class of our profession in this city I would gladly pass over without any notice, if I thought by so doing I was giving even justice to a profession I number one among, and feel great interest in its advancement and the character it sustains in our country. I allude to those who hang out on the streets before their office doors "*a show-case,*" with some half-dozen specimens of their mechanical skill. I do think (be the specimens in those "*cases*" ever so good) this mode of attracting the ignorant (for no others will be drawn by them) to our offices is the lowest, meanest, and most contemptible charlatan humbug quackery any decent set of men were ever guilty of, and I do hope, for the respect they should have for themselves and the honor of their profession, they will abandon the practice forthwith.

I saw the same thing in Savannah; and no matter where I see it, I condemn it, frown upon it, and will *always* do it to the end of the chapter. I am sorry to see, too, in addition to the above, a dentist here has his own picture (*of his face*) sticking up over his "*show-case;*" another has Dr. *Chapin A. Harris*, of Baltimore. Now I don't suppose the Dr. would like to have his face paraded in a "*show-case*," for I think I know his opinion of those articles of street furniture.

You will see, Messrs. Editors, I am death on "*dental street show-cases*," for they don't belong to the age and improvement in dental science.

We have in our profession here many estimable gentlemen, some of whom I have great respect for, not only for their professional worth, but for their private character. I can't say the same for all: wish I could.

Our city has taken a position among the great and growing wealthy cities of the South. In point of refinement there are none now more exalted; so much the better for us.

I hope what I have said will offend no one in our midst, but on the contrary will have the effect desired by this article.

Memphis, *April* 6*th*, 1860.

(From the "VULCANITE.")

STATE OF DENTISTRY IN 1860.

"*Necessity compels and aids invention.*"

WITHIN the short period of thirty years, the *arts* and *demonstrations* of *dentistry* have, by the cultivation and advancement of its American practitioners, been exalted from comparative obscurity into the foremost rank of surgical science.

As to the antiquity of dentistry and its practice among the ancients, *Herodotus* makes mention of the *tooth-doctors* in Egypt during his reign, and from other antiquated records, that this art was (*however rudely*) practised at an early day. During the commencement of Christianity at *Rome*, one of the writers of that time left evidence of the capacious extent of his theoretical knowledge on this subject, in representing that the cause of *tooth-ache* was known only to *God.* From this period to the seventeenth century, it does not appear that any part of this science was practised, except the simple dextrousness of *tooth-pulling,* and that with very rude instruments. In the latter part of the eighteenth century, dentistry was practised and successfully revived in *Paris,* and from thence introduced into America, at or about the period of the Revolution, by the surgeons who accompanied our French allies, as well as by special practitioners.

In and about the year 1820 there were not probably over *thirty* practising dentists in the whole United States, but there were so many improvements, and mechanical dentistry had progressed with such rapid advancement, especially in preparing *artificial teeth,* that, during the year 1830, there were then about 200 dentists. According to an estimate in 1842, there were at that time 1,400, and, in 1848, some 2,000. In 1850 the census reported 2,923 practising dentists; and now, in the year 1860, from the most authentic information, there are 5,000 persons engaged in the practice of this most enticing profession in this country.

At the World's Fair, held in London in 1851, American dentistry was acknowledged to be the first in the world; and the profession since that time has, by greatly adding to its achievements, gained a position among the *arts* and *sciences* which, it is hoped, it will long continue to maintain.

Of the various publications on dentistry, there was one as early as 1728, by that justly styled *pater dentista Fauchaud,* of Paris, in 2 vols. 12mo, of 900 pages, which was the first attempt to systematize this dental art as a distinct branch of *medical science.* During the next succeeding fifty years some half dozen valuable dental works were published. The first English work was by Thomas Berdmore, in 1768, who was rewarded for his professional excellence by being appointed *dentist to the king* (*then George III*). In 1771 and '78 the two principal works, by Dr. Hunter, were published. Dr. Blake published a treatise in 1798, and Fox in 1806. There have been not less than one hundred treatises on this subject by *American authors,* many of which are still in print as standard works, and essential to the completeness of dental libraries. The first was published in 1801, a second in 1802, and a third in 1819, since which there has not been a year without some valuable addition to this list of our dental literature. The largest and most important works on dentistry have been prepared and published by Dr. C. A. Harris, of Baltimore. His Principles and Practice of Dental Surgery, since its first publication, in 1839, has been revised five times, doubled in size, and universally acknowledged to be the best text-book, on this subject, in any language. A Dental Dictionary has also been published by the same author, is a work of high repute, and has passed through two editions.

Of the various periodicals on dentistry, the first and most important was the *American Journal of Dental Science*, published quarterly, and edited by Dr. C. A. Harris, in 1839. From 1840 to 1850 it was conducted under the auspices of the American Association of Dental Surgeons.

The *New York Dental Recorder*, a monthly journal, was commenced September 1st, 1846, under the fostering care of Dr. J. S. Ware, who, after very ably conducting it for some time, transferred it to the late lamented Dr. C. C. Allen, who, after three or four years, associated with him, in the editorial department, Dr. Hill, of Norwalk, Conn. It was finally transferred to the charge of Messrs. Sutton & Raynor, and expired under their management.

The *Dental Intelligencer*, by S. W. Stockton, of Philadelphia, was commenced in November, 1844, as a monthly periodical, at the very moderate price of $1 a year—so remarkably cheap it only lived about two years.

The *Dental News-Letter*, edited and published in Philadelphia, by Jones, White & McCurdy, 1847, was one of the most ably conducted journals ; continued through its twelfth volume, and suppressed, to make room for its successor, the *Cosmos*, New series. A monthly record of dental science, edited by Drs. White, McQuillen, and Zeigler, Philadelphia. First number issued August, 1859. This journal has already established a reputation for professional improvement more useful and successful than any journal that has preceded it in this country.

The *Dental Register of the West*, a quarterly issue, published at Cincinnati, commenced October, 1847, edited by Drs. Taft & Watt. It has lately passed into the hands of Dr. J. T. Toland, former publisher, and converted to a monthly. This is a most able and popular dental publication.

The *Dental Record,* commenced under the auspices of Dr. J. T. Toland, Cincinnati, May, 1858.

The *New York Dental Journal,* edited by Frank H. Norton and Geo. H. Perine, commenced 1858. No. 1, vol. 3, was issued in January, 1860; contains much useful practical matter, and is intended to keep the profession posted in the great improvements of the day.

The *American Dental Review,* Dr. A. M. Leslie, proprietor and publisher, issued quarterly, at St. Louis, Mo.

The *Dental Lamp,* a quarterly periodical, published at Cincinnati, Ohio, by J. M. Brown.

The *Dental Enterprise,* published at Baltimore, Md., monthly, by H. Snowden.

In all Europe there are not more than *two* or *three* journals published, even at the present day. The *Odontotechnique,* published by Dr. C. S. Putnam, in Paris, and the *Dental Review,* of London, (No. 1 of the second volume just received,) are about all of any note devoted exclusively to the interests of this profession.

Besides these journals and publications, having for their object the elucidation and advancement of dentistry in America, we have the varied State and local dental societies, and three very successful dental colleges, the anniversary graduations of which have just taken place, and new candidates for *dental honors* have been sent forth to represent this most reputable profession.

Most of the dentists now in practice have received their education and training for the profession by studying privately under the direction of some regular practitioner—by observing his daily treatment of cases, assisting in the laboratory, and, as increased experience would justify, taking an active part in some practice until, after a period of two or three years, they may become sufficiently competent to commence the practice of this vocation. Many now in practice are regular graduates of medical universities, and not a few have been engaged in medical and the practice of other learned professions, who have been attracted by the allurements of dentistry.

But, with the advancement of dental science in America, and the consequent demand for an augmented education of its practitioners, it was evident that persons intending to become dentists would be best qualified for their duties by a systematic course of teaching and training in a special school of dentistry. Some of our medical institutions, in order to aid those who were particularly devoted to dental surgery, have, at various times, established lectureships for that purpose. The New York Medical College, at its sessions of 1852 and 1853, had a course of lectures on this subject by the late Dr. C. C. Allen. The best means for obtaining a full dental education is private instruction, and a combination of the advantages of *medical* and *dental* colleges, as has been abundantly proved by the success attending those who have thus been qualified. Our dental colleges do not seek to undervalue this preparatory study and training of private preceptorship, but make it a condition of graduation, that the candidate shall have thus studied for at least two years.

This country has the honor of having been the first, and *(until very recently)* the only one, to establish special institutions for instruction in dentistry. The value and feasibility of this system of tuition has been fully demonstrated by the success attending our Dental Colleges, one of which, the *pioneer* in this department, is located in the city of Baltimore, and has just passed through its twentieth annual session. The Ohio College of Dental Surgeons, at Cincinnati, has also just finished its fifteenth session, and the Pennsylvania College of Dental Surgeons has also just passed a very prosperous and successful session ; the usual lectures commence on or about the 1st of Nov., and terminate on 1st of March, having a Faculty of eight Professors—viz. : Principles of Dental Science and Practice of Dental Surgery, Therapeutics and Materia Medica, Mechanical Dentistry, Chemistry and Metallurgy, Anatomy and Physiology, Microscopic and Comparative Anatomy of the Teeth, Demonstrator of Mechanical Dentistry, and Demonstrator of Operative Dentistry. The Infirmaries attached to the institutions are generally supplied by persons who desire to have operations performed free from any pecuniary charge, affording every opportunity to teach the young "idea how to shoot." The New York College of Dental Surgeons was chartered about 1850 ; was located at Syracuse ; Dr. Amos Westcott was appointed Dean ; but, somehow or other, this institution was strangled in its infancy. Why a Dental College has not been established in this, the empire city of the world (*in dentistry*, *at least*) I cannot divine. For the past three sessions of the Senate and Assembly I have been called upon to protest and remonstrate to the passage of an act to establish a Dental College in this city, petitioned for by parties unknown to the profession in this city, evidently gotten up by interested parties to make money. Almost every State now has its Dental Society or Association. The *American Society of Dental Surgeons* was organized 1840; held its annual meetings on the first week in August at the following places:—Philadelphia, 1851; Newport, 1852; West Point, 1853; the place designated for the meeting of 1854 was Cincinnati, but it was not organized, owing to the cholera, since which the Society has been disbanded.

The *Society of Dental Surgeons of the State of New York* was formally organized, by a convention of dentists from all parts of the State, at the hall of the Medical College, in Crosby Street, November, 1847, and for several years it continued to flourish, having regular meetings of much interest to the profession; it had one of the best dental libraries, and a good dental apparatus;—through internal dissension it was broken up, its effects sold at auction, and the proceeds divided among its members. The Pennsylvania Association of Dental Surgeons was founded 1845; the Dental Association of Alleghany County, founded 1852; the Mississippi Valley Association of Dental Surgeons; the Indiana State Dental Society; the Western Dental Society, comprising the States of Missouri, Illinois, &c.; the St. Louis City Dental Association; the Georgia State Dental Society; the Michigan State Dental Society; the New York State Dental Society, and the New York City Dental Association; and the profession is also further represented by a delegated body, the National Dental Convention, the first annual meeting to be held at Washington, D. C., 17th July next, and the American Dental Convention, the next annual meeting of which will be held at Saratoga Springs, on Tuesday, 7th August.

If the foregoing list of Dental Colleges, Dental Associations, and Dental Conventions is any indication, this may emphatically be termed an age of improvement in art, and surely should be a proud era, and gratifying to the heart of every American, to contemplate the lofty superiority of genius which has given birth to so many noble inventions and institutions in the short period of our professional existence.

Artificial teeth were first invented in Paris, which continued to be the chief place for their manufacture until *American ingenuity* devised a superior article. Twenty years ago, not more than 250,000 teeth were annually manufactured in the United States, and a less number in Europe ; at the present time there are, probably, not less than five millions of mineral teeth annually manufactured in this city and Philadelphia, a considerable portion of which are exported to all parts of the world, including France, the country of their invention. The capital invested in this business alone amounts to upwards of $500,000, giving employment to a large number of persons, many of whom are women, employed in moulding, enamelling, &c. The manufacture of teeth at the extensive establishment of *Jones & White, at Philadelphia,* and some of the statistics indicating the progress of Dentistry from the amount necessary to conduct this business, and the amount of sales of some of the materials of their manufacture are as follows :—The brass moulds they have in use amount to 700 in number, producing nearly 9,000 different shapes and styles of teeth, costing upwards of $18,000. Platina is the heaviest item of expense. Of this not less than 300 ounces are used every month for the pins of teeth, which, at the common price of $8 per ounce, amounts to $2,400 for this single item alone. This establishment employs about 100 operatives, the wages of whom amount to about $700 per week, and turn out 180,000 finished teeth per month. The amount of gold, in the form of foil only, sold by this firm, amounts to about $2,100 per week, or $109,200 per year. They have depots in Philadelphia, New York, Boston, and Chicago, beside agencies in other principal cities in both this country and Europe, and the value of their yearly production amounts to over the sum of $350,000. Although this country furnishes so rich a fund of physical and intellectual wealth, and affords such vast and extensive variety of materials for greatness, still that has not prevented many of our young "wide awake" dentists, aspiring for foreign fame, from locating themselves in some of the principal cities of Europe. Dr. Brewster, formerly of Charleston, South Carolina, was the pioneer of American dentistry on the Continent ; he located himself at Paris in 1835 ; after practising for several years, he amassed a fortune ; is still in Paris, but not now in practice, having been succeeded by Dr

T. W. Evans, from Lancaster, Pennsylvania, in 1850. Dr. James Fowler, formerly from this city, established himself in Paris in 1855. We understand Dr. Fowler has already earned a reputation in France as an extraordinarily good mechanical dentist, and Dr. C. S. Putnam, also from this city. Dr. P. has lately undertaken the arduous duties of an editor and publisher. We have just received a number of his journal, styled the *Odontotechnique.* "*Jewrusalem*," what a name ! ! ! He has the agency in Europe for the *Vulcanite* or *Indurated Rubber*, as a base for artificial teeth. This is getting to be a very popular substitute for, and is likely to displace, both gold and silver for partial and temporary sets of teeth ; but for complete and permanent dentures there is not, and I think the time far in the distance when there will be, anything to surpass the *continuous gum process*, *invented and patented* by Dr. John Allen, of this city. It is estimated that the 5,000 practising dentists in the United States have consumed annually $2,500,000 worth of *gold*, *platina*, and silver in plate, foil, &c., for filling and inserting artificial teeth. This amount is diminishing daily in consumption, by the introduction of the vulcanite for dentures, osteoplastic for filling, and other substitutes for those precious metals. The subjects for the *mechanical dentist* are of uncommon extent, and require all the skill and ingenuity the best minds can possibly command. Thinking men, acting upon known mechanical principles, are required to produce those perfect modern machines we now see in almost every department of society. His business brings in use the application of all the arts and sciences in his dental laboratory, and nature does not afford a hint, but *art*, directed by the magic hand of *science*, is taught to follow in her footsteps.

EDITORIALS AND CUTTINGS.

WE give below a paper lately received from Dr. John T. Toland, professedly written in reply to the article in our last number by Dr. B. W. Franklin. With the merits of the case in discussion we have nothing to do; we let all parties fight their own battles, and take sides with none; but, when Dr. Toland in the following article takes us to task for admitting what he terms 'scurrilous personalities' into our pages, we humbly consider that our reputation is at stake, and must take the liberty to set his mind at rest on that point at least. By what species of ratiocination Dr. Toland arrives at his conclusions, is beyond our comprehension. If Dr. Toland considers that the printing the word '*proprietor*' in italics, and thus drawing attention to the fact of his connection with the Dental Register, is a 'scurrilous personality,' we are surprised that he should permit his name to be used in that connection on the cover of the 'Register,' or indeed that he should have undertaken the enterprise at all. We look upon that style of printing as a capital advertisement for Dr. Toland, and our only doubts about so printing it, arose from the question whether we could consistently give him an advertisement gratis; we are sorry that Dr. Toland should look upon his proprietorship in such an unamiable light. Dr. Toland proceeds to refer to the fact that our office is in the same building with the agent of the A. H. R. Co., with a covert meaning, probably not flattering to ourselves, but so excellently well hidden beneath a cloud of words, that we are not afraid lest any one should find it out, and will therefore not refer to it farther.

Dr. Toland proceeds to state with very considerable emphasis, that the 'Dental Register is the only Dental Journal in the United States which stands up fully to its prospectus, and claims and receives payment *invariably in advance.*' The first clause of this sentence we deny, in so far as it may refer to us; the NEW YORK DENTAL JOURNAL has never departed in the slightest degree from the promises made at its first presentation. As for the second clause, if the 'Register' can both claim and *receive* its subscriptions in advance, it can do more than we can, and we congratulate it on the fact, while we cannot see that it invalidates our right to the esteem of our readers, or strengthens that of the Register. If we can *trust* our subscribers and the Register can not, it certainly does not flatter the honesty of the subscribers to the Register. With these remarks we present the article as written, and end our reference to the subject.

MESSRS. EDITORS:—In your January issue, I find a communication over the signature of B. W. Franklin, which I presume is the long promised article which was to give me "fits," over which the local and travelling agents of the A. H. R. Co. have been chuckling, and which they have used to intimidate the profession to facilitate the sale of "Licenses." It makes me feel very bad, but as your correspondent most probably acts upon the principle of a certain Quack Doctor, whose first effort in all cases was to throw his patient into fits because he was "h—l on fits," I may hope for speedy recovery.

Mr. Franklin takes exceptions to a brief business notice in the January No. of the Dental Register, and lest your readers should not be aware that I am the "*proprietor*," he repeats it in italics some half a dozen times, for which I thank him. Your readers must hold *you* in very light esteem if they are willing to condemn me for being proprietor of the Dental Register, as your correspondent fain would have them do, which will not be likely to be increased by admitting into your columns such scurrilous personalities, more especially when it is known that the agent of the A. H. R. Co., and the Editors of the N. Y. Dental Journal have their offices in common at 640 Broadway, New York.

Neither did I imagine that by having a Dental Depot I became any the more reprehensible on general principles, though I can well conceive how *particular circumstances* may alter cases, for is not your correspondent AGENT for a would-be monopoly of a "professional patent" at a salary of $2000 a year, with abundance of leisure to discuss abolitionism and its kindred vagaries? Is it this that makes the *agent* so zealous and brave that he must fight even the shadows of his own distempered mind in order to make fair weather with his masters?

Your correspondent accuses me of indulging in "gibes," and seems much concerned lest the Register should lose the respect of its subscribers and the profession, and informs me that the respectable portion will not sympathize with me. What disinterested kindness! If *he* is a specimen, I hope not! I ask no sympathy! What I have done has been at *my own expense* and on *my own responsibility.* Being satisfied of the correctness of my position, and feeling that I owe it as a duty to the profession, I pursue that course which conscience dictates, regardless of whom it pleases or displeases; whether in opposition to some upstart impostor, or a boastful moneyed monopoly. Others may whine like cats and blind puppies—Mr. Franklin particularly plaintive and low, *if he chooses*—but for my part, I appeal to no man's lachrymose propensities; but I *challenge* the respect of all honorable men, and *I know* that the *unsought* judgment of the profession coincides with my view of dental patents.

Mr. Franklin and the profession at large have had ample opportunity to know my position on dental patents. I do not oppose *all* patents whether dental or otherwise, but I am opposed to patentees assuming to control what their patent does not cover.

I have the satisfaction of knowing, and I can prove it beyond cavil, that the Dental Register is now in better condition than it ever has been before. It is edited better, printed better, and pays better, and in all these respects it compares favorably with any other Dental Journal in the world, and is the only one in the United States which stands up fully to its prospectus, and claims and receives payment *invariably in advance.*

The *agent* with great adroitness dodges the *main issue*, viz., the Decision against Roberts, and questions my veracity in regard to the A. H. R. Co.'s "urgency to sell rights," and immediately after states the fact that threatening circulars were issued to the profession, and I am informed that another is in course of preparation. What should be thought of the veracity of one who so completely contradicts himself in two consecutive sentences? It is about as reliable as his experiments on the strength of metals and *other materials* used for Dental plates! Probably some of the profession who have been called upon by travelling agents, could answer whether any "urgency was manifested."

Your correspondent goes on to say: "The court granted permanent injunction against Roberts," and then remarks, "Whether the case was manfully contested I leave for others to judge;" he leaves it to those who have no opportunity to obtain the facts upon which to base a judgment, because those in possession of the facts are interested in withholding them from the profession. What sort of truth this implies, I will inform the readers of the June No. of the Register, and the "proprietor" thereof replies to the inquiry of Mr. Franklin, as to who the N. Y. correspondent of the Register was, that by application to the Editors, Drs. Taft and Watt, he can easily ascertain;—he ought to have known this much of the rules governing the press without being told. Mr. Franklin reiterates that Mr. Goodyear gave notice again and again to the profession, that if they used the vulcanite process without a license they would be severally prosecuted. Why these repeated and unnecessary threats? Is it, to say the least, courteous to the profession to shriek to them continually, "Stop thief! stop thief!" I think not. Either, as before stated, this monopoly is uncertain in its pretensions, or it treats, through its apparently self-constituted mouthpiece, Mr. Franklin, the entire dental profession as a band of thieves. Why did he not say that the case was contested to the *end;* that there was no compromise, and that Roberts received no benefits by permitting injunction to be entered against him? Why does he not state frankly and definitely, what the Goodyear patents are? what the scope and *limit* of their rights to the manufacture of materials, as well as to the extent and *limits* of their rights to the curing or vulcanizing process (it is a well established fact that no one can patent a principle)? What is the formula by which they manufacture material? Is it four ounces of sulphur to a pound of gum; or is it a pound of sulphur to a pound of gum; or is it a SECRET? If he would do this, he would at least be entitled to the respect of the profession for fairness, even if he should not sell so many "rights."

I must say in justice to the American Hard Rubber Co., that the position which they occupied with the profession was very different before this specialty was placed in the hands of Mr. Franklin than it has been since, inasmuch as he has destroyed the feeling of satisfaction with which the new improvement was anticipated. The dental profession is composed chiefly of high-toned, honorable gentlemen, who will not tamely submit to be treated like thieves or driven like dogs; for, unfortunately, Mr. Franklin has gauged the character of the profession by his own narrow, contracted views, and although I do not believe that either Mr. Goodyear or Mr. Ropes would voluntarily take the position which the Company now occupies before the profession, they cannot avoid the responsibility of the acts of their agent, although they may say to the profession, as did Macbeth to Banquo's ghost: "Shake not thy gory locks at me—thou canst not say, I did it."

Mr. Franklin's gratuitous advice *seems* to be very good; but as an old merchant once remarked, "Beware of the advice of those who are always unsuccessful;" therefore, if I should feel the want of advice I would prefer to go to some one who has himself succeeded, in preference to one who has failed in every undertaking. "The suspicious need watching;" those who are most ready to suspect the honesty or doubt the veracity of others may generally be suspected of having the greatest weakness in that direction themselves.

The insinuations cast upon my personal honesty, with which Mr. Franklin fitly takes leave of your readers, I can very well afford to overlook. And as I feel perfect assurance and security in the rectitude of my own thoughts and intentions, I shall issue no intimidating circulars to enforce an acknowledgment thereof, but would ask, At what particular period did Franklin embrace "Honesty as the best policy?" as his language clearly implies he did not always pursue that "*idea.*"

For the conclusion of this interesting subject, I refer the reader to the June No. of the Dental Register. Truly Yours,

Jno. T. Toland.

HYPNOTIC ANÆSTHESIA.

This subject is at present occupying a large share of the attention of scientific minds in Europe. Brought prominently before the public by Velpeau, and admitted into his practice, it carries with it a weight of importance that will soon cause it to take its way across the waters, and doubtless be adopted by our surgical and dental practitioners. This subject was first made public by Mr. James Braid, who published in 1843 a work on what he called *Hypnotism*, or *nervous sleep.* In this work Mr. Braid announces that—If you place a brilliant object a little in front of the medial line of the face, and below the root of the nose, distant about 8 to 15 inches, directing the subject to fasten his eyes upon this object until a permanent contraction is perceptible in the ocular muscles,—in a few moments a singular state will supervene, analogous to catalepsy. The limbs in this condition will preserve whatever position is given them; the senses, with the exception of sight, acquire at the same time exaggerated sensibility, and finally a condition of torpor or sleep results, which lasts an indefinite period ; the subject may however be awakened by light friction on the eyes, and by blowing upon the face. It is only in late years that this species of Anæsthesia has been used in surgical operations. It was found that like other cataleptics, patients thrown into this condition were not susceptible of pain, and many important operations have been performed in Paris and elsewhere, while in this state, and with perfect success. As this method has been successfully practised in dental operations in Europe, we would advise the profession in this country to give it a trial.

GALVANO-CAUTERY APPLIED TO DENTISTRY.

In the March number of the *Revue Odontotechnique*, we find an article upon the above subject. We have not space in whichto translate the whole article, but will give the process as concisely as possible. In order to avoid the difficulties experienced in cauterization from fear caused by the near approach of the heated iron to the diseased portion of the system, galvanism has been successfully used as follows :

Beneath the seat of the operating-chair is placed a box containing a galvanic battery; from this box wires are carried to the top of the chair where they are joined to the instrument to be used in the operation ; the operator standing behind the patient applies the point of the instrument to the caries, and pressing his foot upon a pedal makes connection between the wires and the battery, when the point of the instrument at once reaches white heat; withdrawing the foot from the pedal, it as instantaneously becomes cold.

The importance of this application will be seen at once, and we refer the reader to the above journal for a more extended description.

There has been discovered in Indiana the inferior Maxillary of a Mastodon, measuring three feet in length by one in breadth.

It is said that there exists in Philadelphia a male twenty years of age, having a head the size of a full-grown man, while the rest of his body resembles a child three or four years old; although his upper maxillary is embellished with three rows of teeth, he cannot eat:—*What is it?*

BOOKS RECEIVED.

The Dentist's Pocket Diary and Appointment Book for 1860 and 1861.—A neat little morocco Companion, with Calendar and other conveniences, published by Jones & White.

The Journal of Rational Medicine. Edited by C. H. Cleaveland, M. D. Nos. 1, 2, 3.

Revue Odontotechnique Franco—Americaine, *January* and *March*.

British and Foreign Medico-Chirurgical Review, *January*.

Chicago Medical Journal, *February*.

Boston Medical and Surgical Journal, *January*, *February*, *March*.

Dental Review. London. *January*, *February*, *March*.

TOOTH-DRAWING IN SPAIN.

A recent traveller in Spain describes an itinerant dentist, in the public streets of Cadiz, to whom a patient, in the shape of a pain-stricken muleteer, came griping at his jaw for assistance. The grave quack did not dismount, hardly stooped in his saddle, but, with one experienced, farsighted, keen glance at the cavernous tooth, drew a long Toledo rapier, with a curious twisted steel hilt, that hung by his side, slipped the point under the black fang, and scooped it out with a single twitch. With military precision he wiped his sword, slipped it back into its sheath, held out his hand for the twopenny fee, touched his hat, and rode gravely off.

Not long since, the wife of a laborer in Glasgow gave birth to a female child who came prepared for the vicissitudes of this life, with no less than twelve front teeth.

REMARKABLE CASE OF STRONG JAWS.

Happening into the Lager Beer saloon of Herr Stengel, in the Bowery near 4th St., a few evenings since, we witnessed the following: a small-sized German, under the influence of a wager, seized a full barrel of beer, weighing about 120 pounds, by the bung between his teeth, and carried it suspended a distance of about thirty feet and back. The diameter of the bung was two inches, and our readers will find very few jaws capable of such distension. We consider this the greatest Dental feat we have ever witnessed.

HUNTER MEMORIAL.

We see by the Boston papers, that the efforts now making in England, to raise by subscription a monument to John Hunter, is being favorably received by the medical profession in Massachusetts. To no man do the Dental profession owe a deeper debt of gratitude than to that same John Hunter, and we think it would be well if every dentist, as well as physician, should throw in his mite toward honoring his memory. A committee from the Mass. Medical Society have the matter in charge, and if any feel inclined to forward the undertaking we shall be happy to render any information and assistance in our power. The subscription books containing the signatures of the donors, are to be handsomely bound and deposited in the Hunterian Museum in London. The amount of subscription is fixed at the small sum of *one dollar*. Eds.

We give below a copy of the bill lately offered to the Senate of this State for the incorporation of a "New York College of Dental Surgeons," accompanied by a remonstrance which was sent to the Senate, signed by some sixty influential Dentists in this city, besides a number from other parts of the State. We are happy to say that this remonstrance was entirely successful. The bill was signed by nine men, five of whom had neither 'local habitation nor name,' at least in the City Directory. As we have before expressed our opinion of these attempts to force a sham college upon us, we will say nothing more at present, the papers speak for themselves.

An Act to Incorporate the New York College of Dental Surgeons.

The People of the State of York, represented in Senate and Assembly, do enact as follows:

Section 1. James Watts, Henry Armstrong, Thomas D. Andrews, Wm. Worth, Theodore Ragan, Allen E. Carter, Robert R. Williams, John Thomas, Stephen Cooper, John Ludwigg, their associates and successors in office be, and the same are, hereby created a body politic and corporate, capable of suing and being sued, pleading and being impleaded, defending and being defended in any of the courts of this State.

§ 2. The said corporation shall have a common seal, which they may alter or renew at pleasure, and they shall be authorized to purchase, hold and dispose of property, real, personal and mixed, in their corporate capacity, under the name and style of the "New York College of Dental Surgeons," provided that the capital stock of said institution shall not exceed the sum of fifty thousand dollars, which shall be divided into shares of twenty each.

§ 3. The board of trustees shall consist of not less than eleven, nor more than fifteen members, a majority of whom shall constitute a quorum for doing business.

§ 4. The members composing said board of trustees shall be chosen by the stockholders annually, on the first Monday in February; a majority of the votes cast being requisite to a choice, and in casting their votes, each stockholder shall have one vote for every share of stock held by him up to the number of twenty-five shares, and one for every five shares which may be holden beyond that number; provided said trustees may hold their offices and exercise the duties thereof, until their successors are elected and qualified.

§ 5. The officers of the board shall be a president, vice-president, secretary and treasurer, to be chosen by said board out of their own body.

§ 6. The board of trustees shall appoint a faculty, which shall consist of at least five professors who shall be competent to deliver lectures for the proper instruction of students in the various departments of medical science which shall include anatomy, physiology, pathology, materia medica, chemistry, principles and practice of mechanical dentistry.

§ 7. The medical faculty of this institution together with the board of trustees shall be authorized to confer the degree of D. D. S. (doctor of dental surgery) upon such persons, and for such purposes as this degree is conferred by medical colleges generally throughout the United States, and shall have power to make such by-laws, rules and regulations as may be deemed necessary for the government of such an institution; provided that nothing herein contained shall be inconsistent with the constitution and laws of the United States, and the State of New York.

§ 8. No student shall be allowed to present himself as a candidate for graduation in this institution, until he shall present to the faculty thereof satisfactory testimonials of the following qualifications:

1. That he is twenty-one years of age.

2. That he is of good moral character.

3. That he has been regularly engaged in the study of the theory and practice of dentistry, with some respectable practitioner or practitioners, for the term of three years, and that he has attended two full courses of dental lectures in some legally incorporated dental college, the last of which shall have been attended in this institution.

But it is hereby provided that any individual who may have been for four years, next preceding, engaged in constant and reputable practice of dentistry, and shall have attended one full course of dental lectures in this institution, shall be permitted to present himself as a candidate for graduation, before the faculty and board thereof.

§ 9. The faculty and board of this institution shall not be permitted to grant a diploma to any applicant, until such applicant shall have passed a thorough, critical and impartial examination, which examination shall be made by the said faculty, and shall include the various departments of dental science enumerated in the sixth section of this act.

§ 10. That the board of trustees, appointed by the first section of this act, shall have power to perform all the duties which the said board is hereby authorized to perform, until their successors shall have been chosen and qualified.

§ 11. All vacancies which may occur in the board of trustees, may be filled by a majority of the remaining members of said board.

§ 12. That each and every stockholder shall be liable in his individual capacity for debts contracted by the corporation while he may be, or shall have been a stockholder in the same.

§ 13. This corporation shall not possess banking powers, or any other power, not herein specially delegated.

§ 14. This act shall take effect immediately.

REMONSTRANCE TO THE PASSAGE OF AN ACT, ENTITLED "AN ACT TO INCORPORATE THE NEW YORK COLLEGE OF DENTAL SURGEONS."

To the Honorable, the Senate and Assembly of the State of New York, assembled:

WE, the undersigned, members of the DENTAL PROFESSION, in the State of New York, observe with regret an application to your Honorable Body for the passage of an Act, entitled "An Act for the New York College of Dental Surgeons." Whereas, the applicants James Watts, Henry Armstrong, Thomas D. Andrews, and others are unknown to the Dental Profession; and Whereas there already exists a "NEW YORK DENTAL COLLEGE," with full Charter; and Whereas, the Dental Profession in New York have recently taken action in reference to applying to your Honorable Body for an alteration or modification in the already existing Charter: Therefore,

We the undersigned do most respectfully remonstrate to your Honorable Body against the passage of said Act.

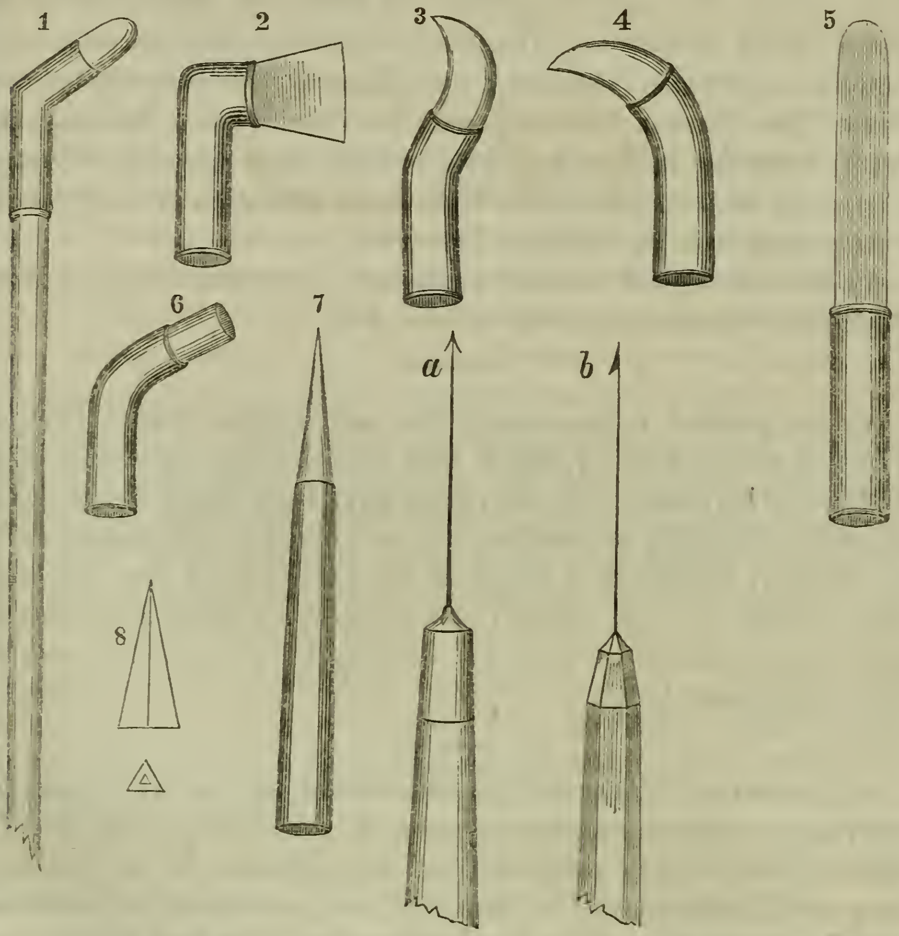
WE are gratified in announcing that our respected friend Prof. A. Westcott, was on Tuesday, March 13th, elected to the responsible office of Mayor of Syracuse. No man could have been found better qualified either by ability or devotion to the interests of Syracuse, to fill the position; his efforts in behalf of the prosperity of that city have been untiring; and with regard to his connection with the profession he has so long honored, we need say nothing, he is too well-known to need our commendation. EDS.

OUR *travelling Editor* still remains abroad, and we are constantly receiving glowing communications from his pen, telling of the gratifying treatment he has received from the profession in all quarters. Many new ideas presented to him, and new operations or inventions which have come under his notice will receive in our next number the attention they deserve. EDS.

WE learn that steps have been taken in Lexington, Ky. with the ultimate intention of organizing a State Dental Association. Push on the good work, there is no reason why among so many good dentists as there are in Kentucky, there should not be public spirit enough to sustain a good Association. Eds.

DR. STONE'S ARKANSAS BURNISHERS.

The great practical value of these burnishers to the operator who desires to make a finished stopping, cannot be too highly considered; the following presented to us by Dr. Stone of Lexington, will be clearly understood by the cut, figures 1 to 8, and their usefulness readily seen. Drs. Stone and Talbot have used them for a long time, and from work which we have seen, we unhesitatingly recommend them to the profession. They are furnished of any shape or size desired.

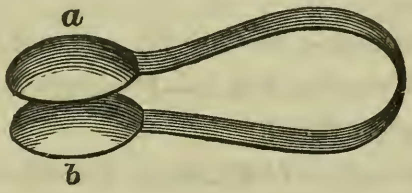


NERVE EXTRACTORS.

We give also in the same cut with the above, figures *a* and *b*, two nerve-extractors, furnished us by Dr. Stone; as will be seen the points are delicate, and they are in every respect adapted to their purpose; they can be obtained at Bouche's Instrument Manufactory.

HAAS' DUCT COMPRESSOR.

Dr. J. Haas, of Evansville, Ind., has presented us with the little instrument, a cut of which we give below. It is intended for compressing the parotid duct, to stop the flow of saliva. *Cap a* is passed inside of the cheek, covering the duct; *b* presses on the outside of the face, thus gently holding the duct between. This instrument with that of Dr. Hawes' of this city, enables the operator to avoid the incessant and annoying flow of saliva, so troublesome in filling teeth.



PARAFINA IMPRESSIONS.

We have seen a specimen of this article, which is prepared from Coal Oil and recommended to us by our friend Dr. R. Peckover, of Paris, Ky. Judging from appearances and from the experiments we have seen made, we should say it would become generally used; it is clear, white and tasteless, and not expensive; specimens can be seen at the office of this Journal. Eds.

We give below the *Order of business* for the next meeting of the American Dental Convention, to be held at Saratoga on Tuesday, August 7th, 1860.

AMERICAN DENTAL CONVENTION.

The Executive Committee report the following *Order of Business* for the meeting to be held at Saratoga, on Tuesday, the 7th of August, 1860:

1st, Reading Minutes of last meeting; 2nd, Reports of officers and committees; 3rd, Admission of members; 4th, Election of officers; 5th, Retiring President's address; 6th, Induction of officers elect; 7th, Miscellaneous business; 8th, Essays and discussions. All essays shall be read to open the discussions on the subjects to which they relate, and they shall be limited to twenty minutes in length.

I. ARTIFICIAL DENTURES.—Preparing the mouth; materials for, and modes of obtaining impressions and models; various bases and their manipulations.—*Metals, Minerals, Gums.*

II. STRUCTURE AND NUTRITION OF THE TEETH.

III. IRREGULARITIES.—*Causes; Treatment*—Prophylactic and Remedial.

IV. SENSITIVE DENTINE.—*Pathology. Cause; Treatment.*

V. EXPOSED OR WOUNDED PULP.—*Prognosis. Treatment*—Preservative, and, when devitalized.

VI. DISEASED DENTINE.—*Pathology. Causes*—Remote and proximal, including the effects of different diseases and medicaments upon the teeth. *Treatment*—Prophylactic, *general and local.* Remedial, *general and local*, including materials for and modes of filling.

N. B.—No member to speak more than fifteen minutes, or more than twice upon the same subject, without permission.

9th. Exhibitions of models, improvements, or inventions, with miscellaneous discussions or unfinished business.

GEO. H. FOOTE,
JOSEPH RICHARDSON,
T. H. BURRAS,
JEREMIAH MASON,
S. W. ROBINSON,
} Executive Committee.

SOCIETY OF DENTAL SURGEONS OF THE CITY OF NEW YORK.

A MEETING of the dentists of New York and vicinity was held at the Cooper Institute, on the evening of March 13th, at which preliminary steps were taken for the formation of a City Association. At subsequent meetings, a constitution and code of by-laws were adopted, and the following-named gentlemen elected officers for the ensuing year, viz.:—President, A. McIlroy; 1st Vice-Pres., F. H. Clark; 2d Vice-

Pres., T. H. Burras; Rec. Sec., E. C. Rushmore; Cor. Sec., B. W. Franklin; Treasurer, James T. Stratton; Librarian, John Allen.

On the completion of the organization, the President-elect addressed the association as follows:—

GENTLEMEN OF THE NEW YORK SOCIETY OF DENTAL SURGEONS:—You have elected me to preside at your meetings during the first year of your organized efforts for mutual improvement and dental progress. For this mark of confidence and esteem, you are entitled to my thanks and gratitude. It is also due to you that I should endeavor to understand your interests as members of this body, and aid in promoting those interests in an honorable and practical manner. And in this connection, let me say, gentlemen, that it seems to be a barren and narrow definition of a chairman's functions, which makes him a species of mental Bridget, just to keep the house in order. That friendly sympathy which prompted your votes, should be reflected from the chairman's desk; and in a judicious exercise of that mutual regard, more may be accomplished for the prompt advancement of your avowed objects, than by the most rigid enforcement of all parliamentary rules. In the discharge of my duties, therefore, I shall rely on your kind coöperation.

It has often been asserted, that an organization of dentists cannot be maintained in New York—that there is an unusual want of harmony among them. This is a bold statement, in view of the fact, that even the last Society of Dental Surgeons, established in 1847, flourished vigorously for six or seven years, improving its members, and bearing good fruit to others at a distance, through the columns of *The Dental Recorder,* edited by Dr. Charles C. Allen, one of its most able and useful members. This society eventually dissolved, it is true; but it had accomplished its mission. It was not expected to last for ever. The most fertile organizations are not always the longest-lived; and rapidity of change involves renewal of arrangements. As to the want of harmony complained of, I can only say that, if it be true, it must be owing to the social and political circumstances by which we are surrounded. The springs of human action here cannot be very different from what they are elsewhere. The most valuable prize—the most desirable residence, as fair Italy can testify—is sure to engender the fiercest struggles; and a metropolitan reputation will always be most eagerly sought for by the greatest number. Besides, the absence of all legal restrictions or qualifications invites to professional life many who are unfitted by nature and acquisition for association; and in a social structure like ours, where the lines of distinction are so faintly drawn, it is inevitable that men of dissimilar tastes, habits, and education, will occasionally meet and clash. Still, from what I have seen abroad, where an entirely different social state prevails, I prefer this unrestricted, unconventional system, with all its ills. Beyond cavil, it is the only system which will develop the individual to the utmost, either for good or evil. As Christians or philosophers, we cannot doubt that the good, the true, the beautiful, will ultimately triumph.

Modern Dentistry,—the new era in dental science,—according to my chronology, gentlemen, dates as far back as the year of our Lord one thousand eight hundred and thirty-nine. It was begotten in Baltimore, and born in New York. I well remember the first throe of parturition, when the eminent Dr. Hayden, of Baltimore, wrote to Dr. Solyman Brown, of New York, requesting him to get together certain dentists of this city, to consider the propriety of forming a national association. Hayden knew his man. A primary meeting was called at Dr. Brown's house, in Park Place. That, at least, was a harmonious meeting. There were but four persons present,—Solyman Brown, the forerunner of good-will to dentists: the late Dr. Spooner, the accomplished dentist, scholar and gentleman; that plucky son of Virginia, John Lovejoy; and your humble servant, then junior partner with Spooner. You all know what followed Hayden's action. At the summons of a few great spirits in Baltimore, Philadelphia, New York, and Boston, men everywhere caught the enthusiasm: the American Association and American Quarterly were founded; colleges, societies, periodicals were established. The prophet had stricken the rocky Horeb of the dental heart, and forth gushed a stream of intelligence which gladdened our thirsty tribe. Like true converts to a true faith, men went about relating their experience; and that, too, without seeming to realize that, in teaching others, they were learning themselves, on the principle that we must get rid of the old matter before we assimilate the new. And you know what has been the result of this awakening. Compare the average surgical and mechanical dentistry of to-day with that of twenty years ago, and then compare the best efforts in those respective branches. Leaving aside a few old eminent names, it is as if the humblest dentarius had been quickly transformed into the accomplished dental surgeon. That, gentlemen, is as far back as I can trace the pedigree of Modern Dentistry—and "that is heraldry enough for me."

But of late years, while individual dentists in this city have been distinguishing themselves as among the most brilliant operators who have ever lived, we, as a body, seem to have relaxed our mutual essays at progression. Let us hope it is only "genius' slumber." Is it not time we had roused from this isolated, inglorious state? With the clarion voices of our Western brothers constantly ringing in our ears; with Baltimore, Philadelphia, and old London, in her learning, all straining in the fray, shall we, of this proud Empire City, remain mute spectators, or join our brethren in the holy crusade against human deformity and human suffering?

The stars, too, seem propitious, gentlemen. What place could be more appropriate for the birth of your association than this "PARMLEY Building," until now the abode of your art, in its highest form, and now just taken possession of by ASAHEL JONES and SAMUEL STOCKTON WHITE? The conjunction in their courses of the time-honored dentist with the most successful dental merchant, and that old, renowned manufacturing name—each, in his orbit, a star of the first magnitude. To be born at such a junction, without premeditation, is certainly a happy augury for the "New York Society of Dental Surgeons."

Monthly meetings are to be held for professional discussion, and quarterly meetings for the transaction of business. A good room has been secured, at No. 640 Broadway.—*Vulcanite.*

IT becomes our painful duty to record the death of Dr. Alvan Blakesly, of Utica, N. Y. The circumstances attending his death are of the most melancholy character. As near as we are able to learn, Dr. Blakesly left Utica about the middle of last month to recuperate his health, his system having become debilitated by constant application to business. His physician and numerous friends advised him to go South for a short time, in order, if possible, to regain his health. He stopped at a friend's a short time in this city, expressing a desire that no one should know of his being here, giving his reason that he was too unwell to see them. He took passage in one of the Savannah steamers, in company with an acquaintance of his from Utica; and, on or before their arrival at Savannah, Dr. Blakesly was missing, it being believed that he had fallen overboard and was drowned. The circumstances connected with his mysterious disappearance from the decks of that steamer may forever remain a mystery to man; but his many virtues, his companionable and gentlemanly deportment, and his efforts to elevate his profession by friendly intercourse, will be remembered by many who will ever cherish for his name the fondest recollections. It was to Dr. Blakesly's efforts mainly that crystal gold and crystal gold foil were introduced to the profession. He was among the very best operators in this country, having but few equals. The mechanical department of his business was superintended by himself, he being a finished mechanical manipulator, taking great pride in excelling in every department of his profession. He was among our oldest practitioners, having been in successful practice for about thirty-five years. It had been our good fortune to enjoy his acquaintance for the past twenty years; and, notwithstanding much of that time his health was but indifferent, yet, under all the depressing influences of ill health and a highly susceptible temperament, aggravated by the nature of his physical derangements, he habitually maintained his peculiar urbanity of manner, and courteous and gentlemanly bearing.

At a meeting of the New York Society of Dental Surgeons, held on Wednesday evening, April 25th, Dr. B. W. Franklin was called to the chair, and the following resolutions were offered by Dr. McIlroy:

Whereas, We, the members of the New York Society of Dental Surgeons, have learned, with profound sorrow, of the death of Dr. Blakesly, of Utica;

And whereas, Dr. Blakesly has been so long and so prominently identified with our profession;

And whereas, We shall no more hear his earnest and instructive voice in our professional conventions, welcome him to our city as the courteous gentleman and honored dentist, or meet him at his home as the kind and hospitable friend,—therefore,

Resolved, That we tender to his bereaved family our heartfelt sympathy, and mourn with them the loss of so eminent and useful a man.

Resolved, That the Secretary be directed to transmit a copy of these proceedings to the family of the deceased.—*Vulcanite.*

We give the following advertisement from Momus a gratuitous insertion, as we think pure wit should be encouraged. Eds.

"Having been honored by Momus, The Great King of Fun, with the appointment of Dentist in Ordinary to all his subjects, I have, at his command, prepared myself to supply at the shortest notice a superior quality of Artificial Teeth, admirably adapted to produce every variety of mirthful expression, from the timid smile of the blushing maiden, upon the first popping of the question matrimonial, to the broadest grin within the recollection of the oldest inhabitant. As these teeth never ache, and masticate food so perfectly as to render indigestion a word without a meaning, and articulate so properly, as never to utter a sentiment which can possibly cause regret, it is confidently expected that the good time we have so long read of has come, when

'Smiles shall be seen on every face
And frowns be known no more.'"

H. Giles Luther,
42 Great Jones Street.

PATHOLOGY OF THE GUMS.

The gums being composed of thick, dense mucous membrane, which is the tissue that lines the mouth, lungs, alimentary canal, and, in fact, all the cavities and hollow organs which communicate externally by different apertures on the skin; and, moreover, being endowed with a high degree of vascularity, it may be well supposed that their condition of health is influenced to a very great extent by certain constitutional tendencies.

Every dentist of any experience at all has often met with cases of spongy inflammation and morbid growths of the gums, that have obstinately resisted the treatment of all local applications and means, for the reason that there was something back which dental surgery could not reach—some cachectic habit of body. The gums of persons possessing this scorbutic of scrofulous diathesis have always a livid and tumid appearance, and bleed profusely upon the slightest touch. When such persons neglect their teeth, and allow tartar and extraneous matter to collect upon them, or dead roots and diseased teeth to remain, the gums inflame, swell, ulcerate, and are generally attended with absorption of the alveolar processes. A crowded or misplaced condition of the teeth may also bring about the same results. On the other hand, the same exciting agents operating upon the gums of a person of healthy, vigorous constitution, would not probably give rise to any difficulty whatever; or, at least, only to slight inflammation.

The great majority of such patients not only require judicious local treatment, but also constitutional treatment, at the hands of some skilled and intelligent physician. Every means should be resorted to calculated to correct, improve and invigorate the general system. The chlorate of potash seems to prove the most favorable of internal remedies. The diet should be nutritious, and all salted meats and high-seasoned dishes must be abstained from. The most difficult cases to cure, we always find among those whose habits of life are not correct—who drink and eat all sorts of trash, and dissipate, and exercise the passions to a very immoderate extent.

The local treatment must be well directed. In the first place, all diseased teeth and roots must be extracted, and every particle of tartar and foreign matter removed, which would be likely to act as exciting causes. Owing to the bleeding, several sittings will be required in order to effectually accomplish this. The gums should be freely cauterized with nitrate of silver in stick, repeated about twice a week, until the parts begin to assume a healthy condition. There are some cases in which the writer uses, in preference to the nitrate, a mixture of equal parts of creosote and tincture of iodine, applied to the gums with a camel's hair pencil. This application should be made as often as the nature of the case demands. Meantime using a tonic and astringent wash.

Very often the gums are attended with a morbid growth, and the enlargement is often so considerable as to cover entirely the crowns of the teeth. This enlargement has been confounded by several writers with hypertrophy; but it is entirely different. Hypertrophy is not of itself a morbid process, though we frequently find it connected with disease. While, on the other hand, in the morbid growth of the gums, the vital properties of the molecules are altered, and their arrangement seems to be different from what it is in the normal tissue.

Last fall the following case came up for treatment. We found the gums very much enlarged in both maxillæ, but more in the upper than in the lower. The molars and bicuspids on the right side were nearly covered, rendering the process of mastication very painful. The gums were of a dark, livid color, bled very easily, and were attended at times with a prickling or itching sensation. Their edges were thick, hung loose around the sides of the teeth, and discharged, when pressed upon, a fœtid purulent matter.

During the first sitting, we cut away the greatest portion of this morbid growth with the gum lancet, by making a horizontal incision around the gums, down to the necks of the teeth, which were badly coated with tartar. As much of this was also removed as the profuse bleeding would admit. Nitrate of silver, in stick, we then applied. After giving the patient a solution of the caustic, to be applied to the gums with a hair pencil twice a day, we sent him to his physician, with the understanding that he was to return to us in the course of a week.

When we saw our patient again, the gums were beginning to present a healthy condition. At this sitting, the balance of the tartar was thoroughly removed, and all remaining portions of morbid gum were cut away with a lancet and a triangular-shaped scaler, down to the alveolar processes. An astringent gum wash was now used. In three or four weeks' time his gums were restored to a sound, healthy condition.

In this case, the tartar which had insinuated itself up under the free margin of the gums, was undoubtedly the exciting cause of the disease, which was favored in its development by the peculiar constitutional tendencies of the patient.

We think the pathology of the gums is a subject worthy the attention and study of every dentist. In some future number of the *Examiner* we shall speak of Epulis.—*South. Dental Examiner.*

To our Friends and Subscribers.

We have had occasion at various times since the establishment of the **New York Dental Journal,** to call upon our subscribers for greater punctuality in settling their bills. The labor and expense of publishing and editing a quarterly periodical, are very much greater than our readers seem to imagine, and unless we meet with punctuality from our subscribers, the undertaking can only eventuate in loss to ourselves, and shame to the profession. After running the gamut of solicitation through all its notes ; boxing the compass of demand in every quarter ; and conjugating the verb PAY through all its moods and tenses ; we are reluctantly obliged to resort to means very much at variance with our desire to believe every man to be a gentleman and treat him as such. In the July number of this JOURNAL, we shall publish a list of the names of those subscribers who at that time shall be one year or more in our debt. Considering the number of letters we are constantly receiving from parties who have neglected to pay, but are exceeding wroth if they do not receive the Journal regularly, we think we are justified in taking this stand, for which we have distinguished examples in the profession.—EDS.

THE

NEW YORK DENTAL JOURNAL.

JULY, 1860.

THE CONDITION OF THE DENTAL PROFESSION IN NEW YORK.

In assuming the publication of the New York Dental Journal, we desire to make a few observations upon the present condition of dentistry in New York. This city ranks as the third city of the world in commercial and social importance. The metropolis of the western continent; the *entrepôt* between the old and the new world; it may rightly be considered to have advanced further than any other city in wealth and general prosperity, when we reflect upon its youth and magic rapidity of growth.

As is well known and acknowledged, the science of dentistry, as a practical art, has been carried to a greater extent by Americans than by any other nation. With those rapid strides, for which we have become famous among men, we have sprung to the first rank in our profession, until every court in Europe prefers the American to the native dentist.

But, in our self-gratulation, let us not forget that this is only in *practical* dentistry. In scientific knowledge of the pathology and physiology of the dental system, England is far in advance of us. In dental literature, England, France, and Germany have produced and are constantly producing contributions to knowledge, compared to which our few books and essays are but as "Hyperion to a satyr." Yet we may conscientiously console ourselves for this, with the knowledge that we are progressing even in this department, and that long before we attain to the respectable gray hairs of our eastern fathers, we may expect to have far surpassed them in theoretical, as we already have in practical knowledge. But all this by the way. We go on to our argument.

As America is *par excellence* the grand field of dental knowledge, it would be supposed that in New York, its capital, would centre the most learned men, the best practical workers, the most of social and professional intercourse and progress. But what is the fact?

"The tree is known by its fruit," and we must judge of our position from the number of our societies, the number of dental journals, the amount of support they receive from contributors to sound dental literature, from the frequency of professional intercourse, and from the general interest manifested by the members in their profession.

Alas! the present state of affairs is neither flattering to our vanity, nor, what is of greater importance, creditable to our self-respect. While nearly every chief city in the country supports its dental journal, and nearly every state boasts its dental association or college; while dentists of other cities strive for the benefit of the profession, bringing forth from time to time the results of their reflections; while with them professional etiquette is the rule, and social intercourse an established fact, what is the case with us? Why this: we have at one time or another possessed three dental periodicals; one descended from the rank of a literary and scientific work to the position of an advertising sheet, and then expired from inanition; the second (now our own) has struggled for two years against what is worse than open enmity—coldness and disregard; the third, established to support a monopoly, and as an advertising medium, will live as long as its owners feel inclined to pay its expenses. And so the city of New York, with a body of dentists equal to one-eighth of all the profession in the country, does not possess self-respect enough to support with zeal a single dental publication. Now, as to associations and colleges—after frantic efforts on the part of the earnest few—what is the result? We have a State Association strangled at birth by its own constitution; probably the only instance on record where the *strength* of the constitution was the only obstacle in the way of healthy existence. We also have a City Association with fair prospects. As to social intercourse, where there is no pride or interest felt in the cause, there can be but little attraction between individual members of the profession. As to colleges, the State of New York some years since obtained a charter for a dental college, but the profession never felt interest enough in it to accept it, or to build up a school such as we ought to possess. One word more, and we will close what has been a most disagreeable though unavoidable duty to us as honest journalists.

The cause of our present professional condition may be found in our incorrigible inactivity, carelessness, and want of respect for ourselves, our class, and our city. In no other trade or body of men in any other city can there be found such universal stagnation of intellect, energy, and earnestness, and all this without the slightest cause or necessity.

We know, and have long known, that there is enough intellect, scientific knowledge, and practical talent, lying latent in our profession in New York, to render her the metropolis of dentistry. The difficulty lies in the lack of energy, and the want of appliances to draw out what really exists and make it fruitful and useful.

We have, therefore, made a plain statement, in which we "nothing extenuate nor set down aught in malice," with the intention of using what little influence we may possess, to bring about a better state of things in the future. To do this, we shall first endeavor to draw out contributions to useful dental literature, and being aware that the time of scientific and practical dentists is valuable, and that it cannot be expected of them to assist every Journal that may call for contributions, without pecuniary or honorary reward, we have determined to offer a series of prizes for articles connected with dentistry. We shall commence with the following:

For the best essay upon the subject of taking impressions, we offer six silver impression cups; and for the second best, three silver impression cups, with the name of the successful contributor engraved *upon each cup.*

For the best article on making metallic dies and swaging metallic plates, we offer an iron sand box, sand flasks, and every thing necessary for getting up plates; for the second best essay upon this subject, we offer a copy of Dr. J. Taft's Operative Dentistry.

For the best essay upon the subject of lining and soldering teeth, we offer a complete set of instruments used in this manipulation: Shears, plates, punch, tweezers, blowpipe, etc.; for the second best essay, we offer a copy of Harris' Dictionary of Dental Science.

These essays are all to be written upon one side of the paper, to be sent to the office of the New York Dental Journal on or before the 15th day of September next ensuing, when they will be submitted to three of the profession in this city well able to judge of the merits of such essays; and upon the rendition of their decision the premiums will be forwarded to the address of the successful writers. All the essays submitted for prizes to become the property of the New York Dental Journal.

In our future numbers we shall continue to award prizes for similar essays.

If by this plan we are enabled to introduce an improved tone into our dental literature; and better still, if we can awaken even a respectable pride of place and profession among those who live by teeth, or from hand to mouth, in this city, we shall feel satisfied.

In conclusion we desire to say that in the future conduct of this Journal, no pains or expense will be spared to make it a desirable dental periodical.

The Editorial department will remain in charge of Mr. Frank H. Norton, as our time would not permit us to assume its duties, even if we felt competent to undertake them. Yet what time we can spare to writing, shall be devoted to plain matters of fact, gathered in the laboratory and office during fifteen years' experience, which we shall contribute from time to time to the pages of this Journal.

W. B. Roberts.

PERINE'S NOTES.

Having expressed a desire to record my impressions of my late visits among the dental profession in the United States, the pages of the New York Dental Journal, with which I had ceased to be connected, were kindly placed at my disposal, and I hasten to take advantage of the opportunity for presenting some facts in this connection to its subscribers. And first, if I could find the language with which to express myself, I would endeavor to give some idea of the cordiality and social kindness with which I have been received during my sojournings in nearly every important city or town from Canada to New Orleans, from Kansas to New York. But any expression of mine would be inadequate to the subject, and I will only say, that I believe the body of American dentists to compare as well in courtesy, sociability, and generosity, as in professional education, with those of any other nation on the face of the globe. Thanking all my many friends for their kind treatment, and hoping that before long I shall be permitted to reciprocate their attention in my own city, I will now proceed to my subject.

My first visit was to Philadelphia, and I was particularly gratified with my visit to the Pennsylvania Dental College. This institution is at present in an extremely flourishing condition, as a glance at the last annual report will exhibit at once. The anatomical collection of the college is extremely interesting.

My first visit in pursuit of dental information was to the establishment of Messrs. Jones & White. This well-known and influential firm continue to conduct the various ramifications of their great manufactory with their old care and attention to the wants of the profession. Their business is not confined to the manufacture of teeth—which alone is very extensive, and gives employment to a large number of operatives, both male and female—but they also manufacture instruments, gold foil, dental furniture, and other kindred matters.

I have before alluded to the progress of the Pennsylvania Dental Association, and will pass on to my visit at *Baltimore*.

Here I visited the father of dental institutions, and found it, I am happy to say, more fresh and vigorous in middle age than in its youth. I took occasion to look in upon Mr. Henry Snowden's dental manufactory, which is being enlarged and conducted on a much more extensive scale than heretofore. Among other improvements, he has erected a steam-engine, which he uses in the manufacture of instruments, thus saving much manual labor. I found nothing of importance or interest in dentistry, until I visited Cincinnati and Memphis; Mr. John T. Toland's establishments in those cities are decidedly the largest and most important in the West and South. Although Mr. Toland does not manufacture teeth, he sells them extensively, and his manufactures of instruments and furniture rival any in the country. I was shown a case of forceps, which sold for $200. The Ohio Dental College is in a flourishing and healthy condition; the buildings are owned by the institution, and as it is the only establishment of the kind in the West, it cannot be otherwise than well-sustained.

I shall now refer to some of the more noteworthy among the many dental offices and laboratories that I visited.

Decidedly the best appointed, most unique, and most convenient of any in the United States, are those of Dr. Westcott, of Syracuse, and Dr. Emerson, of Macon, Ga.

Dr. Hunter, of Cincinnati, possesses the finest private anatomical collection of any I have seen. I was also much pleased at the taste displayed in the office arrangements of Dr. Allport, of Chicago; Drs. Talbot and Stone, of Lexington, Ky.; Drs. Parmlee, Clark, and Frederick, of New Orleans; and Dr. Gage, of Mobile.

During my absence, I was fortunate enough to be present at the meetings of several associations, and the organization of one or two, that of Kentucky among them.

I met with many improvements, both in manufacture and modes of practice, but I cannot give the time or occupy the space necessary to present them. Dr. McCleland, of Louisville, Ky., exhibited a new and improved forceps, which will soon be presented to the profession. Dr. F. Y. Clark, of Savannah, Ga., presented me with a new flask for making dies—drawings of which can be seen by referring to a late number of the *Cosmos*, or the *American Journal.*

One of my most agreeable visits was made to the tooth manufactory of Mr. Porter, Bridgeport, Conn. The different departments of this establishment have recently been greatly enlarged, and now compare favorably with any in the country.

I will close these lines, regretting that time and space would not permit me to give a more extended account of my trip, and a more grateful acknowledgment of the kindness with which I have everywhere been received. The advancement of the profession has been so perceptible that I have been both pleased and surprised at witnessing its progress. On a future occasion I shall perhaps add to my NOTES.

GEO. H. PERINE.

ANÆSTHESIA; OR, ETHER AND CHLOROFORM AS THEY OUGHT TO BE USED BY THE DENTAL PROFESSION.

By L. D. Radzinsky, M.D.

THE Anæsthetic state is generally obtained by the dentist for the purpose of producing total insensibility of the nervous system. This effect is caused to take place by inhaling ether or chloroform. When it is first applied to be inhaled by the patient, it combines with the atmospheric air which is inhaled at the same time, and following it, is subjected to the same operation—that is, to inflate the air-cells of the lungs — and afterward absorbed by the capillaries by which it is surrounded. This absorption is produced the more readily provided the lungs are healthy, for certain reasons which will be explained hereafter.

We can show by the effects resulting from the administration of ether and chloroform, that those two agents contain two very essential principles, one of which produces its effect upon the cerebrum and the mind; next upon the cerebellum, and disturbs voluntary motion; subsequently upon the spinal cord, when voluntary motion and sensibility are apparently extinguished; lastly upon the *medulla oblongata*, which puts an end to life.

The other of these principles serves to stimulate and excite an increase of circulation; from this we may draw the following conclusions: that the object to be obtained by administering an anæsthetic agent is to produce insensibility or loss of sensation, with partial loss of voluntary motion; but if carried to a higher degree, it will produce a noxious effect. Now, we must prevent, if possible, the second principle producing its specific effects—that of an excited state of the circulation—for the very obvious reason, that it will not fail in producing or having an injurious influence upon the brain; which fact is proved by the patient laboring under a certain feverish state, indicated by dilation of the pupils of the eyes, accelerated pulse, and considerable heat of the surface of the body, followed with pain in the head. This state generally continues for several hours after the administration of the anæsthetic, unless relieved by vomiting, which generally takes place when impure ether has been administered. Practitioners have generally attributed this effect to a loaded state of the stomach, but I am of the opinion that it is produced by a reflex action of the nervous system produced through the sympathetic nerve. This assertion would seem to be proved; having seen many patients make great efforts to vomit, and apparently suffering from a very severe nausea; but rather than believe this to be an injurious result, I have always tried to favor it by administering warm diluent drinks, and I have always found that the feverish state subsided very soon after.

Now, why are not these different symptoms produced by chloroform? This I will attempt to explain. Chloroform produces its effects with much greater rapidity, and without producing an increase of circulation; and after the anæsthetic state is produced, it leaves the patient almost as quickly as it put him under its influence, without producing vomiting, nausea, or headache.

But when its full absorption has taken place into the circulation, its effects are produced so rapidly, that it is apt to go through all the different stages already named, until it acts upon the medulla oblongata. There it is that the danger lies; because it does not seem to be endowed with the power of producing a reflex action upon the nervous flexus of the stomach, and therefore the nervous stimula which is necessary after having produced a too profound anæsthesia is wanting; the cerebrum and cerebellum being rendered entirely passive by its stupefying properties, and its not possessing any power of reaction, the specific influences are allowed to exert their pernicious effect so rapidly as to give but very little time to arrest it. These are the two great differences between the above named anæsthetics: 1. Ether being too stimulating to the circulation; and chloroform not at all. 2. Ether being possessed with the power of reaction, or of producing a reflex action upon the nervous system; and chloroform, by its great volatility and more powerful influences, produces a profound insensibility so rapidly as to paralyze the cerebellum and medulla oblongata, thereby preventing those organs from fulfilling their functions—which, under these circumstances, would be of producing the desired reaction and reflex action, which, viewed in this light, acts as an efficient safety-valve to the functions of the medulla oblongata.

Having seen by the above facts the respective merits of ether and chloroform, let us see what would be the means to employ in their administration to obviate and prevent their injurious effects taking place.

In administering sulphuric ether, the first duty of the operator should be to purify it, by washing it thoroughly in water, until the peculiar acid or acrid taste is removed; because if this is not done, when inhaled, these impurities become condensed and absorbed by the mucus which always exists in more or less abundance in the air passages of the lungs, and there exert a very irritating effect, often productive of great distress to the patient. The next precaution to be observed is to make a physical examination of the patient by auscultation, percussion, and palpitation, in order to discover any lesion of the lungs or heart; and if any should be found, the administration of these agents becomes highly improper, as the life of the patient is placed in jeopardy; and no operator whosoever should administer them, if he is able to detect the above named lesion of the heart and lungs. In such a case he should call to his assistance a medical man, if not the family physician of his patient.

Moreover, he should not have his patient in a sitting or vertical position; the horizontal position is the best, because the liability to syncope is greatly removed. To this the objection will be made that it is rather an awkward position, if not an indelicate one, particularly if the patient is a female. But in answer to the objection I would say that the operator should so practice himself as to be able to operate in any time, under any circumstances, and in any position, even if it is an indelicate one, and never to put his patient's life to any risks in order to study his own convenience.

Next, the question will arise, how should the anæsthetic agent be administered? Will it be by means of any apparatus or not?

From the experience which I have had, I am led to think that the simpler the instrument, the better it is. I have used and experimented with a great many instruments which were very complicated and expensive, and perhaps very showy for an office, but they have always a bad influence upon the mind of a patient. There are very few, no matter how strong their nerves may be, who will not tremble at the sight of all the "attirail" of torture generally seen in a dental office. But in due justice I would here state that the simplest and most efficient instrument that I have used was one made after the pattern of those manufactured by Dr. Luther, of New York.

A certain amount of atmospheric air should be allowed to be inhaled at first, until dilation of the pupil of the eye takes place. Then the strength is to be gradually increased, by allowing more ether to be inhaled, until relaxation of the muscles takes place, and by taking notice all the time of the state of the pulse. If too great fullness and rapidity of the pulsations should be detected, the inhalation must be carried on more slowly, as this would produce a state of great excitement, during which a great deal of time and ether is lost, and during which the patient most always recovers consciousness.

L. D. Radzinsky, M. D.

(To be continued.)

[For "The New York Dental Journal."]

STEEL.

The *Southern Dental Examiner*, in the July No., calls the attention of the profession to the importance of understanding the method of working *Steel*—so far, at least, as to be able to re-point and temper their own excavators and other delicate-pointed instruments. This subject has for a long time appeared to us as being of great importance to the operative dentist. There are many difficult cases requiring alterations to be made in the points of instruments, so as to adapt them to the exigencies of the case in hand, and to be able to make alterations at the time when the difficulties presented suggest the forms required. It was my practice for many years to make these alterations almost daily. There are many standard forms that can be purchased at the dental depots, or of the instrument makers, cheaper and better than the dentist could make; but the knowledge required to enable him to make those delicate points, which none but a dentist can appreciate, is certainly of great importance to every practitioner who prides himself upon the delicacy and perfection of his operations.

The best cast-steel for any light purpose, is the small square bars, for the reason that the square steel is wrought out under the hammer, while the round is rolled or drawn out in a wire-mill: in one case, the crystalline structure is condensed and rendered more compact and finer; in the other, the crystals are elongated and less tenacious; the obtusity of these elongated crystals, when reduced to their delicate points, have little power of endurance. Cast-steel, after being tempered several times, loses its power to harden; this may be settled by placing the steel or instrument in animal charcoal, made of burnt leather or horn-shaving, and heating at a dark cherry-red heat for an hour or two; the points should then be heated and lightly hammered, repeating the operation several times to condense its crystalline structure. The best method of tempering small delicate points, is to take a sheet-iron box, or trough, and cover the bottom about one-sixteenth of an inch deep with finely-powdered animal charcoal, then place on the coal-dust a layer of instruments, cover these in the same manner, and so on till all in the box are well covered; this trough is now to be placed in a good clean charcoal fire, and heated up slowly until the box and contents are even and uniformly heated to a dark-red heat; keep the heat at this point for an hour or more, and then suddenly turn the contents into a pail or tub of clear cold water. The animal charcoal recarbonizes the steel and improves its quality, as well as protects it from the danger of over-heating, which, if done, would destroy it, rendering it brittle and worthless.

Animal charcoal may be made by burning old boots, or shoes, or scraps of leather, in an open fire, until they are thoroughly charred through. The instruments are now to be taken from the water, wiped dry, placed in the iron dish, and covered with common lamp oil; the dish and contents to be placed over the fire, and heated up slowly until the oil takes fire on the surface, or until the instruments take fire on exposing it to the air; then remove the dish from the fire and allow the oil to become nearly cold before removing the instruments. If the operations are conducted reasonably careful, the instruments will all be of one uniform temper, corresponding to the needle temper of the best English manufacture. In case we want to temper one or more instruments for immediate use, after heating to redness to remove the temper, file the point down, leaving it straight and round, the size required, smoothing with emery-cloth, or pine stick with fine emery; the instrument is now to be shaped by using a small hammer and bending the steel cold over the edge or corner of a steel stake, or any convenient hardened piece of steel that has a square corner. All the bending and shaping may be done cold, with light blows with a hammer; we now, with a fine file or files, give the exact shape required, and temper in the flame of a common soldering lamp, being careful not to over-heat the steel—it should only be heated to a cherry-red—and plunged into clean cold water; the temper must now be drawn to the required hardness, which must vary according to the purposes for which it is designed to be used. The blades of excavators may be oiled with sweet oil and held over the flame of a very small alcohol lamp, applying the heat to the instrument a little back of the point, and moving it backward and forward in the flame, so as to heat it up slowly and uniform as possible, and at the instant the oil takes fire at the point of the instrument, it should be plunged into cold water; if this is done properly—and a very little practice will enable the operator to judge correctly as to time and degree of heat—the results are the same as if the temper was drawn in the manner first described; a good spring temper requires the oil to be burnt twice, and sometimes three times. When the temper is drawn by color, a bar of iron is heated to redness, and the instrument on or near the heated iron, or it may be done in the flame of a lamp; and when the instrument assumes a bright straw-color, it may be plunged into water. A dark straw-color is less hard, and a blue color will spring without breaking. Those having little experience in drawing temper by color, would not succeed as uniformly well by color as by the other processes, inasmuch as the slightest modification in the color of course ruins the temper of the instrument; while in drawing the temper under oil, it must be obvious that when the oil ignites, the instrument is subjected to one uniform degree of heat, and will be found to be more uniform in temper and quality.

B. W. Franklin.

THE AMERICAN DELEGATE CONVENTION OF DENTISTS

Met, pursuant to adjournment, at the Smithsonian Institution in Washington City, on Tuesday, July 31st, 1860, and were called to order at half-past twelve o'clock by the Chairman, Dr. *W. W. Allport*, of Chicago, who briefly recapitulated the circumstances under which the Association was formed, and announced that it was now ready to proceed to business.

The minutes of the last meeting were read by the Secretary, Dr. *J. Taft*, of Cincinnati; and having been slightly amended, they were declared approved.

Dr. *Barker*, of Philadelphia, moved that a Committee on Credentials, to consist of five members, be appointed by the chair.

Dr. *Hagg* moved to amend the motion, so that the committee should consist of one member from each delegation; which was not agreed to. The motion of Dr. Barker was then adopted.

The *Chairman* appointed, as the Committee on Credentials, Drs. Barker, Clark, Fitch, Blake, and Hunt.

Dr. *Barker* moved, in order to give the Committee on Credentials time to prepare their report, that the convention adjourn until four o'clock, P. M., which was agreed to, and the convention accordingly adjourned.

4 o'clock P. M.

The convention was called to order by the chairman.

Dr. *Barker*, from the Committee on Credentials, reported the following list of delegates, as representatives from the institutions named:—

Washington City Dental Association.—Drs. J. B. Gibbs and H. W. Wadsworth.

Georgia Dental Society of Savannah.—Dr. F. Y. Clark.

Cincinnati Dental Association.—Drs. J. Taft and H. R. Smith.

Mad River Valley Dental Society.—Dr. W. A. Pease.

Pennsylvania Association Dental Surgeons.—Drs. S. Dillingham, J. H. McQuillen, J. Foster Flagg, C. P. Fitch, J. Van Osten, Daniel McFarlan, B. M. Gildea, and George T. Barker.

Pennsylvania College of Dental Surgery.—Dr. J. L. Suesserrott.

Western Dental Society.—Drs. W. W. Allport and A. Blake.

Indiana State Dental Association.—Drs. P. G. C. Hunt and S. B. Smith.

Kentucky State Dental Association.—Drs. W. Muir Rogers and A. S. Talbert.

The report was accepted.

Dr. *McQuillen*, from the Committee on the Constitution, submitted a report, with a draft of a constitution for the government of the convention; which was read.

On motion by Dr. *Barker*, the report was accepted, and the committee were discharged.

On motion by Dr. *Taft*, the proposed draft of a constitution was then taken up for consideration and discussion.

The first section having been read, Dr. *McQuillen* moved to strike out the words "style and title," so that the section would read, "This organization shall be known by the name of the American Dental Association;" which was agreed to.

The second section was adopted without amendment.

The first paragraph of the third section having been read, Dr. *Barker* moved to strike out the words "as members by invitation," so that it would read, "The members of this Association shall be exclusively practitioners of dentistry, holding their appointment to membership, either as delegates from local institutions or as permanent members." The motion was agreed to.

Dr. *Blake* stated that he had a communication from the St. Louis Dental Society, recommending some alterations in the proposed constitution, and the rules having been suspended, he was allowed to read it for information.

The first paragraph of the third section was then adopted, as amended.

The next paragraph was amended, on motion by Dr. *Barker*, by striking out the words at the end, "and until another is appointed to succeed him," so that the paragraph would read, "The delegates shall receive their appointment from permanently organized dental societies and dental colleges in the Union, each delegate holding his appointment for one year."

The following paragraph was stricken out: "The members by invitation shall be practitioners of reputable standing, from sections of the country not otherwise represented at the meeting. They shall receive their appointment by invitation of the meeting, after an introduction from any of the members present."

The next paragraph reads as follows: "The permanent members shall consist of all those who have served in the capacity of delegates, and of such other members as may receive their appointment by unanimous vote."

Dr. *Barker* moved to amend this paragraph by striking out all after the word "delegates."

Some discussion ensued, in which Drs. *Taft*, *McQuillen*, and *Flagg* participated—the latter preferring to retain the whole paragraph in its present form. Remarks were also made by Drs. *Rogers*, *Fitch*, *Pease*, and others; after which the amendment of Dr. Barker was agreed to, and the paragraph as amended was adopted.

The next paragraph was amended so as to read as follows: "Each delegate and permanent member shall be entitled to debate and vote on all questions, and be eligible to any office in the gift of the Association." In this form it was adopted.

The next paragraph was amended so as to read as follows: "To defray the expense of printing the transactions, and to meet other incidental expenses, the sum of two dollars shall be assessed annually upon all the members present at meetings of the Association." In this form it was adopted.

On motion by Dr. *Barker*, the next paragraph was amended so as to read as follows: "No member who is not present at the meeting of the Association, shall be required to pay the annual assessment." It was then adopted.

The remaining paragraphs in the third section were adopted without amendment.

The fourth section having been read, on motion by Dr. *Barker*, that portion was stricken out which declares that the place of meeting shall never be the same for any two years in succession. On motion by Dr. *Taft*, the time for the annual meetings was changed from the third Tuesday in July to the last Tuesday in July.

The section in relation to the Standing Committees was amended by striking out the Committee on Scientific Investigation, and substituting Committees on Dental Physiology and Dental Chemistry.

The Committee of Arrangements was made to consist of three members, instead of five.

The paragraph in relation to prize essays was so changed that the prizes should be bestowed in the form of medals, not exceeding in value fifty dollars each.

Several other verbal amendments were made, when the constitution was finally adopted, in the following form:

I.—NAME.

This organization shall be known by the name of the *American Dental Association.*

II.—OBJECTS.

The objects of this Association shall be, to cultivate the science and art of dentistry, and all its collateral branches, to elevate and sustain the professional character of dentists, to promote among them mutual improvement, social intercourse, and good feeling, and to collectively represent and have cognizance of the common interests of the dental profession in every part of the United States.

III.—MEMBERS.

The members of this Association shall be exclusively practitioners of dentistry, holding their appointment to membership either as delegates from local institutions, or as permanent members.

The delegates shall receive their appointment from permanently organized dental societies and dental colleges in the Union, each delegate holding his appointment for one year.

Each local society shall be entitled to send to the association one delegate for every five of its active members, and the faculty of each college to send one of its members as a representative.

The permanent members shall consist of all those who have served in the capacity of delegates.

Each delegate and permanent member shall be entitled to debate, and vote on all questions, and be eligible to any office in the gift of the association.

To defray the expense of printing the transactions, and to meet other incidental expenses, the sum of two dollars shall be assessed annually upon all the members present at meetings of the Association.

No member who is not present at a meeting of the Association, shall be required to pay the annual assessment.

Every member elect, prior to the permanent organization of the annual meeting, or before voting on any question after the meeting has been organized, must sign these regulations, inscribing his name in full, specifying in what capacity he attends, and if a delegate, the title of the institution from which he has received his appointment.

No one shall be permitted to address the Association before giving his name and residence, which shall be distinctly announced from the chair.

IV.—MEETINGS.

The regular meetings of the Association shall be held annually, and commence on the last Tuesday in July. The place of meeting shall be determined each year by the vote of the Association.

V.—OFFICERS.

The officers of the Association shall be a president, two vice-presidents, corresponding secretary, recording secretary, and a treasurer. They shall be nominated by a special committee of one member from every state represented at the meeting, and shall be elected by a vote on a general ticket. Each officer shall hold his appointment for one year, and until another is elected to succeed him.

The President shall preside at the meetings, and perform all the duties that custom or parliamentary usage may require.

The Vice-Presidents.—In the absence of the president, one of the vice-presidents shall assume all the duties of the office; and in the absence of these officers, a chairman, *pro tem.* shall be appointed *viva voce.*

The Corresponding Secretary shall attend to the correspondence with the Association, and give due notice of the time and place of each annual meeting.

The Recording Secretary shall keep accurate minutes of the proceedings of the Association, preserve the archives and unpublished transactions, and attend to all other duties that appertain to the office.

The Treasurer shall have the immediate charge of the funds and property of the Association, and shall present a balanced account, duly authenticated, at every regular meeting, to the Committee of Publication.

IV.—STANDING COMMITTEES.

The following Standing Committees shall be organized at every annual meeting, to prepare, arrange, and expedite business for each ensuing year, and to carry into effect the orders of the Association not otherwise assigned, namely: a Committee of Arrangements, of Publication, on Prize Essays, on Dental Physiology, on Dental Chemistry, on Dental Pathology and Surgery, on Mechanical Dentistry, Dental Education, and Dental Literature.

The Committee of Arrangements shall be composed of three members, one of whom, if practicable, shall reside in the place at which the Association is to hold its next ensuing annual meeting. They shall be required to procure suitable accommodation for the meeting; to verify and report upon the credentials of membership; to receive and announce all essays and memoirs voluntarily communicated, either by members of the Association, or by others through them; and to select and announce, at the earliest period practicable after their appointment, subjects for discussion at the succeeding annual meeting.

The Committee of Publication shall consist of five members, of which the corresponding secretary and treasurer must constitute a part. They shall be authorized to employ a competent reporter to furnish an accurate report of the proceedings of each meeting. They shall superintend the publication and distribution of such portions of the transactions as the Association may direct. This committee shall audit the accounts of the treasurer, and present a statement of the same in the annual report of the committee; which report shall specify the character and cost of the publications of the Association during the year, the number of copies still at the disposal of the meeting, and the funds on hand for further operations. The committee shall be instructed to print at the beginning of each volume of the transactions, the following disclaimer, viz.: The American Dental Association, although formally accepting and publishing the report of the various standing committees, and essays read before the Association, holds itself wholly irresponsible for the opinions, theories, or criticism therein contained, except when so decided by special resolution.

The Committee on Prize Essays shall consist of five members. Two prizes, consisting of medals not exceeding in value fifty dollars each, may be awarded to the best two communications reported on favorably by the committee, and directed by the Association to be published.

The Committees on Dental Physiology and Dental Chemistry shall be composed of three members each. It shall be the duty of each committee to present yearly reports in their special departments, embracing, if practicable, the results of original investigation.

The Committee on Dental Pathology and Surgery, consisting of five members, shall have under consideration every thing that appertains to pathological conditions of the teeth and adjacent tissues, and the remedial agencies embraced under the head of operative dentistry. Improvements in the latter department, if expedient, shall be thoroughly tested and reported on before the Association by this committee.

The Committee on Mechanical Dentistry shall consist of five members, who shall receive and take cognizance of plans, improvements, and specimens in this department, that may be presented by persons desiring to bring them before the Association. The committee shall be authorized to reject those they may deem unworthy of presentation.

The Committee on Dental Education and Dental Literature, consisting each of three members, shall make annual reports on these important subjects.

The selection of the chairmen and members of the different committees, shall be referred to the nominating committee.

AMENDMENTS.

These articles may be altered and amended with the consent of three-fourths of the members present, at the subsequent annual meeting to that at which such amendment or alteration may have been proposed.

In acknowledgment of having adopted the foregoing propositions, and of our willingness to abide by them, and use our endeavors to carry into effect the objects of this Association, as above set forth, we have hereunto set our names:

NAMES OF MEMBERS.	RESIDENCE.	INSTITUTIONS REPRESENTED.

THE ORDER OF BUSINESS.

The order of business at the annual meeting of the American Dental Association shall at all times be subjected to the vote of three-fourths of all the members in attendance; and, until permanently altered, except when for a time suspended, it shall be as follows, viz.:—

1. The temporary organization of the meeting, preparatory to the election of officers.
2. The report of the Committee of Arrangements, on the credentials of members.
3. The calling of the roll.
4. The reading of minutes.
5. The election of officers.
6. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.
7. The reading and consideration of the stated annual reports from the standing committees.
8. The reading of essays.
9. The discussion of topics selected for the session.
10. The selection of the next place of annual meeting.
11. The appointment of standing committees.
12. Resolutions introducing new business, and instructions to the permanent committees.
13. Unfinished and miscellaneous business.
14. Adjournment.

On motion, the Association adjourned until to-morrow at ten o'clock A. M.

SECOND DAY—WEDNESDAY, AUGUST 1.

The Association was called to order by the chairman, Dr. *Allport*, at ten o'clock A. M.

Dr. *Taft*, secretary, read the minutes of the proceedings of yesterday; which were declared approved.

Dr. *H. R. Smith*, of Cincinnati, remarked that he noticed in a morning paper, *The Constitution*, a statement that this body was sitting with closed doors. This was a misapprehension; and he therefore offered a resolution, which was unanimously adopted, extending a cordial invitation to the profession of Washington City, and all others who may desire, to be present during the deliberations of the Association.

Dr. *Barker*, from the Committee on Credentials, reported the name of Dr. William H. Atkinson, of the Mississippi Valley Association of

Dental Surgeons; and he took his seat among the members of the Association.

On motion by Dr. *Dillingham*, of Pennsylvania, the delegations proceeded to the election of a Nominating Committee, consisting of one member from each delegation; and having retired for consultation, after some time reported the following as said Committee:—

Washington City Dental Association—Dr. J. B. Gibbs.
Georgia Dental Society of Savannah—Dr. F. G. Clark.
Cincinnati Dental Association—Dr. H. R. Smith.
Mad River Valley Dental Society—Dr. W. A. Pease.
Pennsylvania Association of Dental Surgeons—Dr. J. F. Flagg.
Pennsylvania College of Dental Surgery—Dr. J. L. Suesserott.
Western Dental Society—Dr. A. Blake.
Indiana State Dental Association—Dr. P. G. C. Hunt.
Kentucky State Dental Association—Dr. W. M. Rogers.
Mississippi Valley Association of Dental Surgeons—Dr. W. H. Atkinson.

On motion by Dr. *Taft* the Nominating Committee were instructed at present simply to nominate officers, leaving the standing committees for future consultation. While the Nominating Committee were engaged in preparing a list of officers, the Association took a short recess.

Upon being again called to order,

Dr. *Gibbs*, chairman of the Nominating Committee, reported the following list of officers:—

For *President*—Dr. William H. Atkinson, of Ohio.
For *Vice-Presidents*—Drs. Gibbs, of Washington, and Clark, of Georgia.
For *Corresponding Secretary*—Dr. Rogers, of Kentucky.
For *Recording Secretary*—Dr. Taft, of Ohio.
For *Treasurer*—Dr. Dillingham, of Pennsylvania.

The report was accepted, and the above named officers were duly elected.

Drs. *Rogers* and *McQuillen* were appointed a committee to conduct the president elect to the chair.

Dr. *Allport*, on resigning the chair, remarked that there was no one in the profession to whom he would more cheerfully resign the position of presiding officer, than to the gentleman who had been elected to that office.

Dr. *Atkinson* returned his hearty thanks for the preference the Association had expressed, in calling him so unexpectedly to occupy the position of their president. He would have to depend on the courtesy of his fellow members of the Association, for the proper conduct of the business of the same, as he had never presided over any deliberative body; but all he could promise was a hearty good will toward all the members of the Association and an earnest zeal in behalf of the object which had brought them together. He hoped all petty feelings of jealousy or section would be ignored, and that the result of their deliberations might be to promote the advancement of dental science in all its branches.

Dr. Fitch moved to reconsider the vote by which the constitution was adopted yesterday, in order that some amendment might be made in that section relative to the election of officers, which appeared to be somewhat ambiguous. The motion was agreed to.

Several suggestions were made in regard to the form in which the section should be worded; and after some discussion, it was amended so as to read as follows: —

" The officers of the Association shall be a president, two vice-presidents, corresponding secretary, recording secretary, and a treasurer Two or more nominees for each office shall be presented by a special committee of one from each delegation, and shall be voted for separately by ballot, a plurality of votes being necessary for an election. Each officer shall hold his appointment for one year, and until another is elected to succeed him."

As thus amended, it was agreed to, and the constitution as a whole was adopted.

On motion by Dr. *Flagg*, the Association then adjourned until half-past three o'clock, P. M.

3½ o'clock P. M.

The Association met pursuant to adjournment, the president in the chair. The minutes of the morning session were read and approved.

On motion by Dr. *Flagg*, the following resolution was unanimously adopted:—

Resolved, That the thanks of the Association be tendered to Dr. W. W. Allport as a testimonial of its appreciation of the able manner in which he discharged his duties as chairman of the convention.

Dr. *Barker*, from the Committee on Credentials, reported the name of Dr. William Cahoon, of the Michigan Dental Association; who thereupon took his seat as a member of the Association.

On motion by Dr. *Cahoon*, a resolution was adopted that a committee of three be appointed to draft a code of by-laws for the government of the Association; and the president appointed Drs. Cahoon, Allport, and Suesserott as said committee.

A communication from Dr. A. M. Moore, of Lafayette, Indiana, a member of the Indiana State Dental Association, was read by Dr. Taft. Dr. Moore expresses his regret at not being able to attend this meeting of the Association, as he had intended to do; but says that although necessarily absent in body, he is present in spirit. He proceeds to take a retrospective view of the science of dentistry, comparing its past with its present condition. It is within the recollection of many now living, when the barber and the village blacksmith were the only scientific dentists, and the turnkey in the hands of the former and the pinchers in the hands of the latter were the only instruments in use; when the physiology, anatomy, and pathology of the teeth were not considered of enough importance to give them a place as a distinct branch of science. Comparing that period with the present, we are led to exclaim, If such things are found in the green tree, what may we not expect in the dry? If a few years produce such results, what may we and the world at large not expect in after years? Dr. M. adds some suggestions with reference to changes in the constitution. The communication was ordered to be placed on file.

Dr. *Blake* read a short paper, giving the history of the origin and progress of the Western Dental Society, which was ordered to be placed on file.

Dr. *Rogers* submitted the following resolution:—

Resolved, That this Association recommend to all dental practitioners throughout the Union the propriety of requiring from all students under their tuition a pledge to prosecute a course of collegiate dental education.

Dr. *H. R. Smith* opposed the resolution, on the ground that many young men are not able to bear the expense of a collegiate course. He was in favor of elevating the standard of dental education as high as any man, but he could not consent to the exaction of a pledge from students.

Dr. *Atkinson* earnestly advocated the resolution, the only objection he had to it being that it did not go far enough. Much injury was done the cause of dental science in consequence of young men entering the profession without having gone through a proper course of study.

The discussion was continued at some length by Drs. McQuillen, Flagg, Taft, Allport, Clark, and Fitch, who all expressed themselves in favor of the resolution; and Dr. H. R. Smith made further remarks in opposition to it.

The question being taken, the resolution was agreed to.

On motion, the Association adjourned until to-morrow morning at nine o'clock.

THIRD DAY—MORNING SESSION.—THURSDAY, AUGUST 2.

The Association met at nine o'clock, pursuant to adjournment, the president in the chair.

The minutes of the last session were read and approved.

Dr. *Allport* submitted a resolution, which was laid on the table for the present, that the next annual meeting of the American Dental Association be held in the city of Cleveland, Ohio.

Dr. *Taft* moved to reconsider the vote by which the resolution was adopted yesterday afternoon, which was offered by Dr. Rogers. That resolution only included dental education proper, but it was undeniable that there was also in many cases a want of proper literary and general scientific attainment on the part of students. It was a fact that there were graduates from every one of their colleges, and he did not know but there were such every year, who could scarcely construct a sentence of the English language properly.

The motion to reconsider having been agreed to,

Dr. *Taft* offered the following resolution as a substitute for that of Dr. Rogers :—

Resolved, That this Association recommend to all dental practitioners throughout the Union the propriety of urging all students under their tuition to prosecute a collegiate dental education; also, that we feel the importance and necessity of a higher standard of literary and scientific attainments by the students of dentistry.

Dr. *Rogers* accepted the modification, and the resolution in this form was agreed to.

An essay was then read by Dr. *J. F. Flagg*, on the "Claims of Dentistry on Dentists" This paper states, that it requires great knowledge of human nature to enable a dentist so to comport himself as to render himself acceptable to all with whom he may come in contact professionally, maintaining, at the same time, his social and professional position. Many of his patients require to be amused ; others need to be interested ; and this is true, not only of children, but those of a larger growth. To do this successfully requires a fund of resource and information such as few have to draw upon. How often the seed may be sown in familiar conversation in his office, which shall germinate in the mind of the patient to his incalculable advantage; and thus may the germs of high moral principle be implanted, which, in after years, shall be developed in their character. Every thing associated with the profession should be honest and truthful. A child carried to a dentist's office to have a tooth extracted, under the pretence that it is only to be looked at, will ever afterward associate the idea of a dentist with deceit. The dentist should also possess the requisite physical qualifications to perform successfully the mechanical operations required, as well as the highest mental and moral qualities.

The paper was received, and placed in the hands of the Committee of Publication.

Dr. *C. P. Fitch* next read an essay on the "Extraction of Teeth." He adverted to the great improvements which had marked this branch of dentistry; yet this operation was of such frequent occurrence that it was very apt to be ranked among the minor duties of dental practice, and considered of such little consequence as to demand a very slight expenditure of physical energy, and very little culture and skill to accomplish the desired results. The instruments used for extraction were first to be considered; second, when and how this act was to be performed on various and different teeth; and third, a few general suggestions touching the bearing and deportment of the operator in his office. In each operation reference must be had to the kind and form of instrument which the nature of the case demands. Instruments for extracting the teeth should be so constructed as to meet the form and shape of the teeth; then the application of force must be made in the most feasible and direct manner, and should always be in that direction which will meet the least resistance without endangering the mouth of the patient. The improved forceps and elevator were the most appropriate, being superior to the key. The force used in the key is much greater than that actually required, from the fact that it is applied at right angles, or nearly so, with the jaw. There is a great variety in the form of the teeth, and the forceps should be so formed as to meet this variety, using different sizes for different teeth. Care should be taken that the instrument is accurately adjusted on the tooth; unless this is attended to, there is danger of either breaking the tooth or the instrument, and more failures are attributable to this cause than to all other circumstances combined. When the grooves are either too large or too small, the instrument must touch and press upon one or two points only, and this pressure is very liable to crush the teeth or to snap the limbs of the instrument. Where, when, and how should this act be performed? Many teeth are extracted, even at the present day, that should not be; this is a fact too plain to be denied. Teeth that a few years ago were extracted by wholesale, are now restored to health, and rendered valuable as masticators. He insisted that no tooth should be extracted until remedial agencies had been exhausted, and decomposition had gone so far as to render restoration impossible. "Excelsior" should be the motto in preserving rather than extracting. Some dentists get a notoriety as expert tooth-pullers; this was a commendable quality, but not so much so as skill in arresting decay. As a general thing, he would recommend the removal of the *dentes sapientiæ* after the exposure of the nerve; also, the immediate removal of ulcerated teeth and those threatened with abscess. When extraction becomes necessary, the age and physical condition of the patient should be taken into account; and however unpleasant the task of extraction, the operator should never question his success. The same classes of teeth are not extracted with the same force from different mouths, nor are different teeth extracted with the same facility from the same mouth. An eminent practitioner divides the operation into three parts: the starting of the tooth, the destruction of membranous connection with the socket, and the removal from the socket; and urges that each act should be completed before the commencement of its successor. Some dentists seize the tooth at a point between the neck and the crown, instead of pushing the instrument on to the root of the tooth. In the extraction of the interior wisdom-teeth, the force should be upward and backward, forcing them toward the ramus of the jaw. No very definite rules, however, can be laid down in regard to the mode of extraction, as the circumstances of each case must suggest the best means.

With regard to the deportment of the operator, there were several practical suggestions. A person coming into a dental office expects a kind reception; and his first impression is frequently the most potent in giving character to the operation. The simple act of approaching the patient is often attended with a careless indifference and absence of sympathy, or an abruptness, which produces an unpleasant impression. The patient should be impressed with the integrity, skill, and regard of the operator for his physical and mental suffering. A statement of all the unfavorable circumstances of the case should never be withheld when the patient desires to know them. Excessive solicitude and urging upon the part of dentists is often folly, defeating its own end. The general dread of this operation is so great that it is often deferred for months, if not for years. There should never be a great flourish of different instruments in the presence of the patient, as if it was expected that they would have to be used; neither should he see the sharpening of the lancet, or the trying the keenness of its edge. These things, although trifles, and done thoughtlessly, yet have a great influence on the mind of the patient under the circumstances.

The paper was received and placed in the hands of the Committee of Publication.

Dr. *George T. Barker* read an essay on "The Demands of the Age upon Dental Science." It may be well at this time to stop for a moment to consider what are the true demands of the age upon the dental profession, and to inquire whether those demands are being met. Our hearts must be filled with honest pride that our noble art has won so honorable a position within the last fifty years. It seems as if comparatively but few men have elevated our science, while the majority have toiled on, enjoying the fruits of their labors without making the slightest return. The demands of the age are for less painful operations than we can now perform. We need some agent that will destroy the dental pulp without pain—an agent that can be used with impunity in removing the deciduous teeth of children. Another demand is for a different treatment in cases of sensitive dentine. It is said that a few direct cuts with a sharp excavator would accomplish the object; but that reminded us of the fable of the boy and the frogs. We want an agent that will give our patients confidence to come to us in the earliest stages of carious action, and not wait, as is too often the case, until a complete exposure of the dental pulp has taken place. Another demand is for a high order of operations upon the teeth; for work that shall be finished and permanent, protecting, as much as possible, the teeth from subsequent decay. There are too many who graduate their work by the price paid; they dismiss the patient, trusting to nature to repair decay by ossific deposit.

The age also demands educated practitioners, both in literature and science, with minds that can make their fingers work out the thoughts of the brain. There are five hundred persons yearly added to the profession; and of this number but little more than one-tenth are graduates of dental colleges. How can this educated labor be obtained if not in dental colleges? It cannot be obtained in private preceptorship, however faithfully those duties may be performed. We should insist that every young man who now enters the profession, should do so through the portals of our dental colleges, assisted, if possible, by conscientious preceptors. Then we may feel assured that the time will not be far distant when these demands of the age will be fully met.

He proceeded to advert to our demands one upon another. The day has gone by when the honest practitioner, wrapping his mantle about him, will say that he will hold no communication wth his professional brethren. The demand is now for concentrated and associated effort. No practitioner can hold his own and make his mark who thus retires to his secert chamber; but the noble man says, "Freely I have received, freely I will give." He cares not for patented rights, but gives to the profession with ungrudging hands the fruits of his labors—prepared always to ignore them when they are proved wrong or imperfect. He closed by mentioning one of the demands of the age that has just been met in the formation of a National Dental Association upon a strictly representative basis, which would redound to the credit of the profession, stimulating local societies, and elevating the standard of dental science.

The paper was received and referred to the Committee of Publication.

Dr. *J. Taft*, of Cincinnati, read an elaborate essay on the "Secretions of the Mouth." He remarked, that during the past year he had instituted a number of experiments, most of which yet remain incomplete, and of course they could not be embodied in this paper. In regard to the value and importance of these secretions, there has been some diversity of opinion. Saliva was not only useful in assisting mastication, but in aiding the enunciation of human language. Without the moistening and lubricating influence of the saliva, how imperfectly, if at all, would language be uttered. This product could not be retained in the blood with impunity. It is necessary for the health of the patient that this secretion should be withdrawn and duly removed by its appropriate apparatus. He proceeded to remark upon the nature, elaboration, and composition of the saliva.

The product usually found in the mouth is generally denominated mixed saliva, which consists of secretions elaborated by the buccal mucous membrane, as well as by the various salivary glands. Saliva is usually a faintly bluish-white fluid, viscid, inodorous, and tasteless.

After being at rest for a time it deposits a grayish-white sediment, which deposits scales; mucous corpuscles also exist to some extent. The products of different salivary glands exhibit different characteristics in different persons; in no respect more so than in specific gravity. The amount and character of the food modify this. Wright has demonstrated, that human saliva is more dense when food has been taken than when fasting. Mental emotions, atmospheric changes, light, sound, etc., exert an influence upon the deposit of saliva. In two hundred cases, the specific gravity of saliva ranged between 1·069 and 1·089. Pure saliva should be obtained from the salivary glands without the aid of stimulants. One method is, by causing a strong pressure under the chin and titillating the palate with a feather; a feeling of strangulation ensues, during which the saliva is rapidly ejected from the mouth. Saliva is secreted from the parotid, submaxillary, and sublingual glands; the general features of each secretion being very similar. His own experiments had shown but a slight difference in saliva from different glands. One characteristic of saliva is, that it is of a distinctly alkaline reaction. Prolonged hunger causes a secretion of concentrated saliva. During fasting it approximates to, and in long-continued abstinence obtains, an acid reaction. It is definitely alkaline during, and immediately after, meals. Saliva always possesses the following among other ingredients: potash, soda, lime combined with organic matter, epithelium or mucous corpuscles, chloride of sodium and potassium, traces of phosphorus, extract and matter soluble in alkali, precipitable by tannic acid, etc.

The amount of saliva secreted in a given time depends on a variety of circumstances. It is regulated by the condition of the patient, either constitutional, or local, or both. Dry food calls forth more saliva than moist; and hard far more than soft. Substances of a pungent and irritating nature call forth more than mild and pleasant substances. The act of mastication is the most common exciting cause of the secretion of saliva. The movement of the mouth in speaking and singing excites a flow of saliva, unless the speaker is in a high state of mental excitement, when the secretion may be arrested altogether, as is often experienced by timid speakers. The flow continues for a brief period after the use of food. Food mixed with water requires very little. The parotid glands yield about two-thirds of the whole amount of saliva elaborated; the submaxillary one-twentieth, and the sublingual the remainder. During sleep there is little or no saliva secreted. The sight and odor of food will usually excite a flow. Nausea will generally excite a flow of saliva; at such a time the mucous glands are especially active. Fear diminishes the action of the glands very much; fright checks it entirely; anger also diminishes it; good humor and mirth increases it. Erotic emotions increase the secretion of mucus considerably, and that of saliva to some extent. Grief augments the secretion of saliva and mucus. Fluctuations in the quantity of water in the blood have little influence on the quantity of saliva secreted during a given period.

The use of the saliva is threefold—mechanical, chemical, and dynamic. It lubricates the bolus and makes it manageable in the mouth. There is much diversity of opinion as to the chemical action of saliva. Some think it only moistens the food, while others think it exercises a concurrent influence with the gastric fluids throughout the process of digestion. Starch is converted into sugar by the action of mixed saliva. This is probably accomplished by the mucus. All his own experiments went to show that it would convert starch into sugar quite as readily when not mixed with food as when mixed with it. Saliva is subject to many changes by disease; it may be changed to an increased or diminished alkaline condition. Any change of mucus is usually to increased acidity. These changes do not have a direct effect upon the teeth ordinarily; but the decomposition of foreign substances is merely affected by them. Diseased saliva is caused by a vitiated state of the blood, or a diseased condition of the glands. The salivary glands are often required to perform more than their ordinary labor, as in consequence of the use of tobacco or other stimulants. When any organ is overtasked, its production is generally deteriorated. He also urged the importance of frequently cleansing the mouth in sickness, particularly in febrile diseases, for the teeth were extremely liable to be injured by the action of the diseased mucus.

The paper was received and placed in the hands of the Committee on Publication.

Dr. *McQuillen* stated that he had an essay on the "Anatomy, Pathology, Physiology, and Remedial Treatment of the Fifth Pair of Nerves," which he would not read at length. He gave a brief synopsis of this paper, accompanied by illustrations with a model.

Dr. *Barker* moved that the paper be referred to the Committee of Publication; which was agreed to. Subsequently, however, Dr. McQuillen declined furnishing the essay, as he wished to publish it in the *Cosmos.*

Dr. *Suesserott*, from the Committee to prepare a code of By-Laws, submitted a report. After a brief discussion, and the adoption of some slight amendments, the by-laws were agreed to, as follows:—

BY-LAWS.

I.—OF THE PRESIDENT.

The president shall preside at all meetings, keep order, state and put questions, regulate debates, and sign all orders on the treasurer, duly passed by the Society. He shall not discuss any question while in the chair, unless it be a question of order. He shall have no vote, except when his vote may be necessary to decide a question, upon a call of yeas and nays, or upon a ballot, except in a ballot for officers.

II.—OF MEMBERS.

Each delegate, prior to being considered a member of this Association, shall sign the constitution and pay the annual assessment.

III.—CONDUCT OF MEMBERS.

Any act of special immorality or unprofessional conduct, committed by a member of this Association, shall be referred to the Committee of Arrangements, whose duty it shall be to thoroughly examine into the case, and report at the next meeting if the charges be sustained. Whereupon by vote the offending member may be reprimanded or expelled—a two-thirds vote being required for expulsion, a plurality being sufficient for reprimand.

IV.—DEBATE.

No member shall be permitted to address the chair more than twic upon the same subject, nor shall he consume more than fifteen minutes, unless by consent of the Association.

V.—ADDITION TO BY-LAWS.

These by-laws may be amended or added to, by a vote of two-thirds of the members present at any regular meeting.

On motion by Dr. *Allport*, the following resolution was adopted :—

Resolved, That the American Dental Association most respectfully recommend to our dental colleges the necessity of their being more particular in requiring of their matriculants a higher order of general literary and scientific education, and the strictest enforcement of their standard requirements for graduation.

On motion by *Dr Van Osten*, it was

Resolved, That a committee of three be appointed to confer with dental practitioners throughout the union, with a view to the formation of local societies, and to report to this Association at its next stated meeting.

The *President* appointed Drs. Van Osten, Allport, and W. M. Rogers, as said committee.

On motion, the Association adjourned until four o'clock P. M.

Afternoon Session.

4 o'clock P. M.

The Association met pursuant to adjournment, Dr. *Clark*, vice-president, in the chair.

Dr. *Rogers*, on behalf of the Nominating Committee, reported the following list of standing committees :—

Committee of Arrangements—Drs. Cahoon, Atkinson, and Fitch.

Committee of Publication—Drs. Taft, Rogers, Dillingham, Van Osten, and Allport.

Committee on Prize Essays—Drs. Hunt, Clark, Gildea, Rogers, and Suesserott.

Committee on Dental Physiology—Drs. McQuillen, Barker, and McFarlan.

Committee on Dental Pathology and Surgery—Drs. Suesserott, Atkinson, Flagg, Hunt, and Allport.

Committee on Mechanical Dentistry—Drs. S. B. Smith, Blake, Talbert, Dillingham, and Wadsworth.

Committee on Dental Education—Drs. Rogers, Fitch, and Hunt.

Committee on Dental Literature—Drs. Barker, Gibbs, and Taft.

Committee on Dental Chemistry—Drs. Pease, Taft, and Van Osten.

The report was accepted.

The resolution of Dr. *Allport*, that the next annual meeting be held in the city of Cleveland, Ohio, was taken from the table and adopted.

The *President* introduced to the Association Dr. *G. U. Brainard*, of Cleveland, who made some interesting remarks. He expressed his gratification that the next meeting of the American Dental Association was to be held in that place, and promised them a hearty welcome by the citizens of the "Forest City." He further remarked that chemistry, in its relations to the dental art, had been too much neglected. It was the duty of the dental profession to advise the young in relation to the course of life they should pursue to preserve themselves from the necessity of these painful and expensive operations always connected with the dental art. Any one who would undertake to study the subject of organic chemistry must know—and the more he studies the subject, the more strongly will he be convinced—that many articles which are now used as food, as well as articles which have been improperly used in the medical profession, have a direct tendency to injure the teeth. Nature is a guide to us in this particular. We have a few simple articles of diet, to which we should confine ourselves, unless we prefer ill health and decayed teeth; and he hoped the Committee on Dental Chemistry would take up this subject, and report as to a proper course of diet for the young and the old. Such a course would tend, in time, to obviate the necessity of dentists; but it would not be in this generation. As lawyers live by the vices of the community, so dentists and physicians live by the follies of the community. Let the committee report in relation to the best kind of diet to preserve the teeth from becoming carious; for one, he would rather lose a finger at any time, than to lose a tooth.

On motion by Dr. *Barker*, the thanks of the Association were tendered to the Board of Regents of the Smithsonian Institution, and to Professor Henry, their secretary, for the use of the hall during the present session of the Association.

No further business being presented, the Association adjourned, to meet at Cleveland, Ohio, on the last Tuesday of July, 1861, at 12 o'clock, M.

AMERICAN DENTAL CONVENTION.

Sixth Annual Session, held at Saratoga Springs, N. Y., August 7, 8, 9, *and* 10, 1860.

TUESDAY, AUGUST 7—MORNING SESSION.

THE convention met pursuant to adjournment, at Metropolitan Hall, and was called to order by the President, Dr. *L. W. Rogers*, of Utica, N. Y., at 11 o'clock A. M. Several of the officers being absent, the President suggested the election of a temporary Secretary, which was adopted, and Dr. S. M. Robinson, of Jefferson Co., was unanimously elected. On motion, the Secretary *pro tem.* was ordered to read selections from the minutes of the last meeting; the official records being absent, they were read from the NEW YORK DENTAL JOURNAL for October, 1859. On motion, the President appointed Dr. B. W. Franklin, of New York, temporary Treasurer, to collect the dues of the members. The President presented letters from the Treasurer and Corresponding Secretary, regretting their inability to be present at the meeting. The Treasurer *pro tem.* then read a letter from the Treasurer, enclosing statement of accounts of the convention, as follows:—

	DR.	CR.
By Dues received - - - - - - - -		$258 00
To paid Dr. Potter on account of Gilbert's Air Chamber suit - - - - - - -	$154 20	
" Expenses of last convention - - - - -	76 56	
" W. B. Roberts' advance made to treasury of last convention - - - - - - - -	12 04	
" Jones, White & Co.'s bill for Circulars - -	15 20	
	$258 00	$258 00

A balance of $14.80 on the account of Messrs. Jones & White remaining unpaid, was transferred to account of present convention.

The President announced the following *Order of Business* as prepared by the Executive Committee.

1st, Reading Minutes of last meeting; 2nd, Reports of officers and committees; 3rd, Admission of members; 4th, Election of officers; 5th, Retiring President's address; 6th, Induction of officers elect; 7th, Miscellaneous business; 8th, Essays and discussions. All essays shall be read to open the discussions on the subjects to which they relate, and shall be limited to twenty minutes in length.

I. ARTIFICIAL DENTURES.—Preparing the mouth; materials for, and modes of obtaining impressions and models; various bases and their manipulations.—*Metals*, *Minerals*, *Gums*.

II. STRUCTURE AND NUTRITION OF THE TEETH.

III. IRREGULARITIES.—*Causes; Treatment*—Prophylactic and Remedial.

IV. SENSITIVE DENTINE.—*Pathology. Cause; Treatment.*

V. EXPOSED OR WOUNDED PULP.—*Prognosis. Treatment*—Preservative, and when devitalized.

VI. DISEASED DENTINE.—*Pathology. Causes*—Remote and proximal, including the effect of different diseases and medicaments upon the teeth. *Treatment*—Prophylactic, *general and local*. Remedial, *general and local*, including materials for, and modes of filling.

N. B.—No member to speak more than fifteen minutes, or more than twice upon the same subject, without permission.

9th. Exhibitions of models, improvements, or inventions, with miscellaneous discussions or unfinished business.

GEO. F. FOOTE,
JOSEPH RICHARDSON,
T. H. BURRAS,
JEREMIAH MASON,
S. W. ROBINSON,
Executive Committee.

Admission of members, being third in the order of business, was now taken up, and the following list, which includes after-additions, was prepared by the secretary.

E. D. Wheeler, Murfreesboro', Tenn.
F. Searle, Springfield, Mass.
D. S. Gouldy, Oswego, N. Y.
M. B. Stetson, Prospect, N. Y.
P. P. Lewis, Tallahassee, Fla.
S. J. Wetherbee, Boston, Mass.
R. G. Snow, Buffalo, N. Y.
B. S. Whitney, Buffalo, N. Y.
Wm. A. Pease, Dayton, Ohio.
L. D. Cox, Pittsfield, Vt.
C. F. Münter, Jackson, Tenn.
S. M. Robinson, Watertown, N. Y.
D. W. Prime, Brandon, Vt.
E. V. N. Harwood, Rutland, Vt.
S. D. Arnold, Ballston Spa, N. Y.
J. S. Latimer, New York.
Thos. D. Evans, New York Mills, N. Y.
J. C. Munroe, Brooklyn, N. Y.
E. A. L. Roberts, New York.
D. Beatty, Ponchatrula, La.
L. W. Sutton, Greenport, N. Y.
A. Merriman, New York.
B. A. Rodrigues, Charleston, S. C.
F. A. Clark, Savannah, Ga.
E. S. Hurlbut, Springfield, Mass.
W. B. Roberts, New York.
Frank H. Norton, New York.
Geo. H. Perine, New York.
S. L. Smith, Claysville, N. Y.
N. Perry Hall, Rutland, Vt.
Wm. H. Dwinelle, New York.
John D. Chevalier, New York.
H. Jamieson, jr., Lyons, N. Y.
Dr. Crosby, Union Village.
Dr. Cadwell, Glen's Falls.
M. Teffs, West Poultney, Vt.
A. C. Hawes, New York.
T. L. Buckingham, Philadelphia.
H. Kingsley, Middlebury, Vt.
J. McGregory, Southbridge, Mass.
W. Potter, Norwich, Conn.
J. C. Gifford, Westfield, N. Y.
R. G. Reynolds, Waterbury, Ct.
W. B. Hurd, Williamsburgh, L. I.
L. G. Lyman, Newark, N. J.
Wm. C. Parks, Williamsburgh, L. I.
L. Gilman, St. Albans, N. Y.
B. W. Franklin, New York.
R. Scott, Fayetteville, N. Y.
J. Taft, Cincinnati, Ohio.
W. H. Atkinson, Cleveland, Ohio.
J. R. McCurdy, Philadelphia, Pa.
A. M. Assay, Philadelphia, Pa.
L. W. Rogers, Utica, N. Y.
W. L. Bowdoin, Salem, Mass.
T. E. Parkman, Troy.
E. Gidney, Manchester, England.
C. B. McDonald, Connaughtville, Pa.
G. F. J. Colburn, Newark.
John Allen, New York.
M. W. Wilson, Saratoga, N. Y.
S. B. Palmer, Tully, N. Y.
G. E. Knox, Glen's Falls, N. Y.
James Chandler, Syracuse, N. Y.
James E. Duel, Amsterdam, N. Y.
Allen Clark, Poughkeepsie, N. Y.
George Clay, New York.
J. P. Beardsley, Clinton, N. Y.
E. Beckwith, Westmoreland, N. Y.
D. Knower, Schoharie, N. Y.
T. H. Thurston, Fort Edward, N. Y.
John E. Savery, Cato, N. Y.
W. H. Klock, Little Falls, N. Y.
A. S. Talbert, Lexington, Ky.
S. G. Henry, Westboro', Mass.
N. W. Shattuck, Troy, N. Y.
T. Palmer, Fitchburg, Mass.
J. Smith Dodge, jr., New York.
W. H. Tefft, Ticonderoga, N. Y.
J. C. Austin, Albany, N. Y.
William Dalrymple, New York.
W. Johnson, Savanah, N. Y.

Geo. L. Cook, Milford, Mass.
A. Westcott, Syracuse, N. Y.
D. Vandenburgh, Oswego, N. Y.
A. McElroy, New York.
L. Covell, New York.
A. N. Priest, Utica, N. Y.
T. H. Burras, New York.
P. Hogan, Waterford, N. Y.
E. F. Wilson, Rochester, N. Y.
B. S. Brown, Buffalo, N. Y.
S. S. White, Philadelphia.
H. B. Arnold, Thomasville, Ga.
L. Covill, New York.
W. S. Lee, Sodus, N. Y.
P. A. Stackpole, Dover, N. H.
Sam. Mallett., New Haven, N. Y.
J. A. Perkins, Albany, N. Y.
C. F. Rich, Schuylerville, N. Y.
J. H. Morgan, Nashville, N. Y.
Dr. Isaac Shiffield, London, England.
Charles S. Miles, New York.
C. S. Putnam, Paris, France.
Wm. H. Sheffield, New London, Conn.
C. C. Franklin, New York.
J. L. Assay, Philadelphia, Pa.

4th.—*Election of Officers.*—The President appointed Drs. Burras, Rodrigues, and Searles, tellers. The convention then proceeded to ballot, when the following list of officers was elected:—

President—Dr. T. L. Buckingham, Philadelphia.

Vice President—Dr. B. A. Rodrigues, Charleston—nominated by Dr. W. B. Roberts, of New York, and elected unanimously.

Recording Secretary—Dr. B. W. Franklin, New York.

Corresponding Secretary—Dr. I. J. Wetherbee, Boston.

Treasurer—Dr. A. N. Priest, Utica.

The President then appointed the following gentlemen an *Executive Committee:*—Dr. F. Y. Clark, Savannah, Ga.; Dr. F. Searles, Springfield, Mass.; Dr. B. T. Whitney, Buffalo, N. Y.; Dr. E. D. Wheeler, Murfreesboro', Tenn.; Dr. W. A. Pease, Dayton, Ohio.

5th.—*Retiring President's Address.*—Dr. *L. W. Rogers* then rose and addressed the convention as follows:—

GENTLEMEN OF THE CONVENTION:—The next thing in the order of business, as arranged by your committee, is an address by the retiring President. I should have been well pleased if your committee had also given me a subject. As it is, there is no particular question before the House, and we will, if you please, consider ourselves in "Committee of the Whole, on the State of the ——" *Profession.*

I hope gentlemen will not be alarmed at the allusion; I do not intend to make a long speech, but, on the contrary, a very short one.

I therefore protest against your leaving the House or reclining your heads for a nap, for I shall be done almost before you could get your liquor, or compose yourselves to sleep.

When we look at dentistry as it is, and compare it with what it was a few years ago, we are astonished at the progress that has been made. There is probably no art or science in which there has been such great advancement in the same length of time. And this change is seen not only in what has been attained in the principles and practice of the profession, but also in the character and standing of its members.

It is but a short time since all that was known of dentistry, was thought to require no higher talent or skill than that of a village barber or blacksmith. But it has now risen to the dignity of a respectable profession, which, to be successfully followed, demands long study and thorough training, with an amount of scientific knowledge and practical skill equal to that of any other profession.

It must be confessed, however, that many who "profess and call themselves" dentists, are sadly deficient in the qualities and qualifications mentioned. We have able writers, learned professors, and skilful operators, with, perhaps, a fine proportion of members of respectable talents and attainments; but there is still among us a large class of mere *tooth-tinkers*, who are scarcely worthy to rank with the barbers and blacksmiths of former days.

It is true that quacks and pretenders are common to all professions and avocations, but they are more degrading to dentistry, because the public has no certain means of distinguishing between the worthy and the unworthy.

The swarms of charlatans that hang around other professions, are known to be outsiders, with no title to stand among *regular* practitioners. But any man may open an office and call himself a dentist. No diploma, license, or certificate is necessary, to make him just as regular as the best. There is among us no recognized authority to declare who are, and who are not qualified to practice, nor have we any certain rule by which that qualification could be determined. If we were to require a regular course of study, it would exclude many of our best dentists who commenced practice when there were no adequate means of obtaining a dental education. In thus attempting to pull up the tares, we should pull up the wheat also.

This is a state of things incidental to a new profession. The demand for dental service in this country opened a wide and almost unexplored field of investigation, which, with its promises and emoluments, attracted great numbers into the practice. Among those were many ingenious, inquisitive men, who, untrammelled by precedents and unawed by authority, pursued their experiments with a freedom and boldness not always, indeed, to the advantage of their patients, but resulting, on the whole, in valuable improvements and discoveries.

These, and such as these, have contributed much to make dentistry what it now is. But they have been succeeded by a horde of impostors who are a disgrace to the profession.

Is there no way of cutting them off? Must we always submit to such associations? I would not be arrogant or exclusive. It may be desirable—it is certainly inevitable—that there should be a wide difference in the standing and attainments of dentists. I would recognize the humblest degree of skill that can be honestly useful among any class of people. But to be obliged to stand among impudent knaves and charlatans with nothing to distinguish us from them, is too humiliating to be endured.

It is a legal maxim that where there is a wrong there is a remedy. Perhaps, in this case, it is difficult to find the remedy or to apply it when found. Our condition is anomalous. We are standing on the body we wish to move.

Well, gentlemen, I have nothing new to recommend. The only remedy for the evil which occurs to me has been often proposed. It was particularly insisted upon in a letter to the New York State Dental Association, written by Dr. Wescott, last September. It is, in substance, this:—

That a number of our most prominent dentists in this state (and the same may be done in other states), should obtain a charter from the legislature for a dental institute, with power to hold property, establish a library, provide lectures, etc., and to grant diplomas to such persons as, after due examination, should be found qualified to practice.

This plan may not be without objections, but it seems to be the only one that is now practicable; and I am sure it could be carried into effect if the leading members of the profession would give in their support. But precisely here is the difficulty. Many of our most eminent dentists persistently stand aloof from all organizations, for fear of being associated with the class of persons of whom I have spoken.

This is wrong. It is selfish. It is in their power, and it is their duty, to do something to purify and elevate the profession to which they belong. In refusing to do this, they illustrate the virtue of those politicians who profess to be for "the greatest good of the greatest number," but with whom the greatest number is always *number one.*

Let these men step down from their lofty pedestals and lend a helping hand to their laboring brethren, and they will soon find themselves belonging to a profession of which they will have no cause to be ashamed.

As I promised to be short, I will not now pursue this subject further Much has been said of late about "the elevation of our profession," and I have suggested one of the readiest means of doing something toward that end. But, after all, we must not expect too much from this or any other organized effort. I said the evils of which we complain are incidental to a new profession. We must be patient, and wait for the operation of causes that will slowly, but surely, bring about a change.

Some have looked to this convention to be the great winnowing machine that should separate the chaff from the wheat. But it never had any such purpose or design. If there was any great danger of our being overrun by unworthy persons, we could adopt some restrictions for our own protection. But we have, so far, had no cause to complain.

Permit me to say, in closing, that in reference to the elevation of our profession, there has, in my judgment, been too much of boasting and self-glorification among us. Some have been too forward in *pressing* the claims of dentistry, rather than wait for them to be recognized by the community. No person or profession ever attained a permanent standing by talking big or putting on airs. The best way to secure respect is to deserve it, and the surest way of elevating our profession is for us to individually elevate ourselves.

It only remains for me to thank you, gentlemen, for repeated expressions of your confidence and esteem, and to assure you that after serving in office for three successive years, I now retire, with unabated interest in the objects of this convention.

At the conclusion of his address, the President appointed Drs. Dwinelle and Allport a committee to wait upon the President elect to the chair. On being introduced to the convention, the President remarked as follows:—

He thanked the convention for the honor conferred upon him, in his election to this position, but he thought the convention exhibited more confidence in him than he had in himself. He was not accustomed to governing public bodies, but on looking around him, and seeing the intelligence comprised in this body, he had no fears but that he should, with their assistance, find it an easy task. The President then referred in complimentary terms to the characters of the former occupants of the chair, from the institution of the Society. After suggesting to the convention that they should pay strict attention to the business presented, and the subjects before the meeting, and again thanking the convention for the compliments paid him, he took the chair.

On motion of Dr. Perine, a vote of thanks to the retiring board of officers was adopted by the convention. On motion, the hours for the sitting of this convention were adopted as follows:—

The convention shall assemble at nine o'clock A. M., and adjourn at one o'clock P. M., to reassemble at four P. M., and adjourn for the day at seven o'clock.

Afternoon Session.

The convention was called to order by the President at four o'clock, when the first subject for discussion—Artificial Dentures—was declared in order, and was opened by Dr. *B. W. Franklin*, of New York, who read an essay before the convention upon Mechanical Dentistry. This essay will be found in the August number of the *Vulcanite*. At the close of Dr. Franklin's paper, some discussion upon a motion by Dr. *Covell* to refer the essay to a committee of the convention, ensued between Drs. *Allen*, *Taft*, and others. Dr. *Rogers* said that the custom of the convention had been not to discuss the merits of papers or essays brought before them. The motion was tabled.

Dr. *Allen* then read an article upon the subject of continuous gum, which will be found in this number of the Journal.

Dr. *Clark*, of Savannah, rose and presented an article descriptive of his mode of making metallic casts. This invention has already been presented to the profession by Dr. Clark, through the medium of the *Dental Cosmos*.

Dr. *Franklin* then made some remarks upon the subject of plaster and its expansive powers. Said that a combination of one part plaster to three of silax and spar, would only save one-quarter of the expansion. Took impressions first in wax, cutting down the surface to one-eighth of an inch, thus rendering the expansion uniform. Had subjected the above combination to 600 degrees of heat for three hours, with a contraction of only one-fourth resulting.

Dr. *Burras* explained his method of obtaining metallic models, by depositing copper upon the impression by means of galvanism. This method will be found explained in the *Vulcanite* for August.

Dr. *Westcott* said that we often think we have invented something, or made a new discovery, when we have not. Instanced an occasion when he made a new style of forceps with which he was greatly pleased. He travelled a considerable distance to exhibit his invention to a brother dentist, who, after listening to his explanation and complimenting him, opened a little drawer and showed a *fac-simile* of the forceps. He applied this anecdote by stating that he was in possession of half-a-dozen cups like those made by Dr. Burras, and which he had made some fifteen years before. At the same time he did not wish to detract from the merit of Dr. Burras in his invention; his discovery was as worthy *commendation as ever*. Had never used them, as he considered the time lost in electrotyping them was too great to render them practicable. Considered the greater expedition used in dentistry the better; that man is a benefactor who can show how to expedite operations.

Dr. *W. B. Roberts* referred to Dr. Burras' method of electrotyping, as an old method long used in printing. Desired to know if Dr. Burras had used his plan in making metalic dies, and with what success. Had considerable experience in electrotyping, and did not think the appliances used by Dr. Burras were sufficiently powerful to produce the electrotype exhibited, in the given time; thought it would need a much more powerful apparatus. Did not think this mode of making dies was feasible; if it had been so considered by the persons who had used it, thought they would have presented it to the profession long before, and used it in their own practice.

After some further discussion upon this subject, Dr. *Sutton*, of Greenport, L. I., spoke in favor of Dr. Clark's mode of taking impressions. Thought his method of getting up casts was sufficient without electrotyping; had practiced the principle nine or ten years. Found it necessary to be careful about the temperature; if overheated, found shrinkage and contraction prevailed; used pure zinc and pure lead, not liking compound metals.

Dr. *Wetherbee*, of Boston, thought Dr. Clark's model and plan feasible; would not dwell on the expansion and contraction of plaster.

Dr. *Taft* called for an expression of opinion on preparing the mouth.

Dr. *Atkinson*, of Cleveland, had learned to extract teeth and immediately take his impression. Thought that the highest attainments consisted in following nature. Gave his mode of practice in inserting temporary sets. After extracting the teeth, took a pair of cutlery forceps and cut away the alveolar process to a level with the other portions of the jaw, thus aiding absorption. Cuts away a great deal in soft mouths; very little in hard mouths. After cutting away, immediately takes his impression. Makes his plate and inserts in the usual manner.

Dr. *Rodrigues* stated that he had adopted a plan of taking an impression and making his plate previous to extracting the teeth, cutting away in the plaster model the teeth representing those standing in the mouth, and inserting the artificial teeth as soon as he extracted the natural ones.

Dr. *Roberts* had adopted the same method in cases where there were but few natural teeth remaining, and had found that it gave the greatest satisfaction both to himself and his patients. He had not tried the process of Dr. Atkinson, as he considered it a painful and unnecessary operation, as nature would in a short time produce the required absorption, and he thought it the duty of every dentist to give the patient as little pain as possible. By inserting the plate immediately after extracting the teeth, the plate became a protection to the lacerated jaw. In order to avoid uneven absorption, he did not allow the plate to extend over the unabsorbed parts, soldering the teeth to the edge of the plate, and allowing them to occupy the same position as the natural teeth did before they were extracted.

Dr. *Wetherbee*, of Boston, said there was much carelessness among the profession in this matter. Three-fourths of the teeth are introduced before the mouth is ready to receive them. Would first extract the teeth carefully. When sharp points are perceptible, cuts or breaks them with the forceps. After taking the impression and making his plaster model, he cut the model down as much as he supposed the jaw would absorb; then made his plate and mounted his teeth, inserted the set, and left the jaw to adapt itself to the plate.

The convention then adjourned.

Second Day—Morning Session.

The convention was called to order by the President, at nine o'clock.

The Secretary read the minutes of the last meeting, which were adopted.

Dr. *Allen* continued the subject last discussed. Usually extracted the teeth before taking impressions; took his impression, and inserted the artificial set within one or two weeks. Did not pare the gums, but separated where there were points, and crumbled them away with an instrument. Thought the process of absorption went on as well under a plate as if it were not there. If the teeth were not put in soon, a change took place in the relative position of the upper and lower jaw, producing deformity. Thus, his conviction was, that the sooner the artificial teeth were inserted the better.

Dr. *Whitney*, of Buffalo, stated that he extracted with great care, and never cut down the alveolar process or gums. Inserted immediately, say within two or three days; thought that to delay one or two weeks would produce inflammation. Pared the ridge a little. Thought that the pressure of the plate created absorption; gave a case of absorption produced in this manner. The insertion of permanent sets was a question of time, as the shrinkage produced looseness, and sets had to be removed. Thought that permanency was not so important as supposed.

Dr. *Covell* spoke in reference to vulcanite base. Its odor was so powerful as to be perceived at a distance of one or two feet. Preferred either metallic or porcelain bases to vulcanite. The vulcanite absorbed more of the secretions of the mouth than any other substance. The continuous gum was remarkable for its beauty, but he was neither an advocate for, nor an opponent of this composition. Differed from many others in regard to preparing the mouth. He always avoided a vacuum, and with care there need be none; plates will adhere without them, and give no more trouble. He hoped this subject would be further considered and discussed. Referred favorable to Dr. Clark's method of taking impressions.

Dr. *Hurd*, of Williamsburgh, spoke in reference to the sulphur in vulcanite; thought there was not enough of it used to be detrimental. Could not perhaps present any thing new, but thought he was not alone in this respect. In reference to the relative positions of the patient and practitioner, the patient's feelings should be consulted, if only as a matter of policy. The position of the profession was peculiar; and it was remarkable how many dentists failed in life. His method in practice was always to save the patient all the pain possible; he never cut away the alveolar or the gums: we should not tinker with God's work. Thought that the immediate insertion of the temporary plate caused absorption to go on more regularly.

Dr. *Gouldy* was in favor of vulcanite; was wearing it himself, and had found no bad odor from it, either in his own case or those of his patients.

Dr. *Wetherbee* gave a case of a lady, in whose mouth the alveolar ridge had lapped over, and a dentist had inserted a permanent set of teeth without cutting away. The case being brought to him, he cut away the alveolar and the gum, and made a new set, but it was six months before it could be inserted. Argued in favor of cutting away the process in such cases.

Dr. *Franklin* rose to explain. He referred to attacks upon various systems, and the uselessness of such attacks. After further prefatory remarks, he stated that by analysis it has been found that after vulcanizing, there can be no sulphur discovered in the composition. Said it was not true that vulcanite base absorbed more than other substances. With this compound you could accomplish more than with any other substance, either alone or in combination with metal, continuous gum, or any thing else.

Dr. *W. B. Roberts* said he had used gold, platina, silver, and rubbber. His method of making metallic plates and continuous gum work had been placed upon record, and he would not take up the time of the convention in going over it again, but wished only to call attention to a few statements made in the paper read by Dr. Franklin before the convention, on Mechanical Dentistry. It was claimed that rubber was more easily manipulated; had more strength, more certain of good results, easier repaired, etc. His experience was far from proving these to be facts.

Dr. *Franklin* stated that he did not claim rubber to be the strongest material used.

Dr. *Roberts* said, Then we will admit Dr. Franklin's statement as to strength, without further argument, and proceed to the repairing. His experience was that it required much time to repair, and rotted the material each time it was vulcanized, turning it a dark, dirty color, and the repolishing it was as troublesome as the original manufacturing; he considered it the worst kind of work to repair. He wished only to prevent the impression that this work required but little labor. His object in inserting teeth was to use a good material, which would give the greatest satisfaction to his patients and himself, and he found this requisite in continuous gum work. Whereas rubber, it was claimed, contained sulphur, and if taken into the system could not be healthy. He had been informed upon good authority that the red oxide of mercury was used in the coloring material. If so, he did not believe that the vulcanizing process would destroy its deleterious effects upon the system if taken into it, as it would remain mercury still. He wished to know why the advocates of rubber, who considered this article so pure and good for dental purposes, had not given the profession a true analysis of it, that they all might know what they were using in their patients' mouths. He threw out these suggestions, hoping to receive light upon the subject.

Dr. *Taft* said that after extracting he trimmed overhanging portions of the gum, and rasped off projections of the alveolar. Inserted as soon as possible. Found nothing better in his practice than continuous gum. The great objection to leaving the jaws without teeth, was the fact that the jaws in such cases gained a latitude of motion very difficult to obviate afterward. Thus the symmetry of appearance and motion of the face were destroyed; it was also found that the ability to speak distinctly in such cases was also destroyed.

Dr. *Atkinson* presented a model by Dr. Palmer. The plumper was carved separately on the bicuspids, obviating the shrinkage in baking.

Dr. *Colburn*, of New Jersey, described his mode of practice in the use of continuous gum.

Dr. *Gouldy* used arsenic in combination with platina, for soldering platina work. Obviated the running of the solder over the plate by covering the plate with silex.

Dr. *Searle* spoke in favor of the old system of a gold plate, mounted with single block or gum teeth.

Dr. *Allen* had used arsenic in combination, but ceased to do so because it made the solder too porous and brittle. Used platina, combined with gold, and a very little arsenic.

Dr. *Clark*, of Poughkeepsie, had objected to the use of temporary sets, as they caused sponginess when inserted soon after extraction, but had since adopted the plan of temporary dentures. After the teeth had been extracted two months, took his impression in plaster, made his cast, and got up his plate very thin. Trimmed off the bone from the gum; the plate being thin, it conformed to the gums by pressure. Inserted on gold plate principally; had used continuous gum, but not often; thought there was no one style of work suitable for all cases. Had also used vulcanite base, and gave a case of irreparable injury to a set he had inserted on this base.

Dr. *Clay*, of New York, stated that after extracting the teeth he cut away the projecting gum, and filled up the depressions in the model, where but few teeth had been drawn. Used principally continuous gum, and teeth with a groove under the pins, in which a platina wire was placed, extending from the second molar on one side to the one on the opposite side of the jaw ; this was supported by three pieces of wire soldered to the plate and wire ; the pins were bent over the long wire and soldered to it ; this formed a frame-work, which he preferred to the old style of lining. Used thin platina plate, perforated with holes, through which the body could flow, rendering the plate strong, and the whole piece very light.

Dr. *Westcott* said, that as far as the time when the temporary plate should be inserted was concerned, he would do it as soon as possible ; the objection to temporary plates was, that you begin with a rough plate. Desired to speak on the method of preserving the proper formation of the jaw ; had used chamois skin, where the jaw had been cut away ; the pressure of this evened the jaw by absorption ; he also used gutta-percha, but preferred the chamois skin ; he thus succeeded in preparing the mouth properly for the permanent plate. There were great differences in mouths, and he had seen cases where, in place of being reduced by absorption, a new deposition took place.

Afternoon Session.

The meeting was called to order by the President at 4 o'clock. The second subject in the order of business was now taken up for discussion.

Structure and Nutrition of the Teeth.

Dr. *Taft* spoke in relation to the circulation. It had been asserted that the teeth possessed no circulation ; it was true that the circulation was different from that of other portions of the body, but they undoubtedly did possess some circulation for their nutrition or nourishment ; therefore they must possess nerve fibres, and fluids must pass through the dentine. These vessels could not be traced ; but that did not prove that they did not exist. There were facts which proved their circulation ; their vitality proved it. If you took a tooth, and subjected it to proper influences, water would pass through it. He thought the circulation proceeded through the periosteum. The crown depended for its nutrition mainly upon the pulp; if you destroy the pulp, its vitality was gone, as was seen by its loss of sensation. The dentine of the root received its nutrition both from the pulp and the periosteum; if there were no connection between the teeth and the system, nature would throw them off.

Dr. *Atkinson* said that he had a great regard for *cells*; he had no paper prepared, but would offer a few remarks upon this subject. The tooth exhibited the mineral, vegetable, and animal kingdoms in the enamel, dentine, and pulp. By the naturalist, life could be found in the crystal, as well as in every thing else in creation; cell-life being the first development. The next is dentine—a higher progress. What the circulation was in dentine, was portrayed in its structure; this circulation was a plasma of lime, which finally took the form of crystals. Another degree of life was found in the cementum.

Dr. *Dodge*, of New York, spoke upon the formation of crystals; they were the marvels of the unorganized world. There was nothing of their kind in the enamel of the teeth. Cut transversely, you would rarely find in the figures that made up the structure of the enamel a perfect pentagon; cut longitudinally, these figures would be found twisted in, different shapes, and irregular—thus possessing none of the attributes of crystals. Every one of these columns was invested with a covering of animal matter; there was, therefore, no propriety in calling them crystals. The circulation in dentine was produced by absorption, and not by vascularity.

Dr. *Westcott* said that the enamel was a crystalline body divested of circulation, and beyond the reach of vitality. The bone was so far divested of circulation, as to show no signs of it. He did not deny its circulation, and thought it had vessels. The enamel and the bony structure were incapable of resisting chemical affinity, and could be decomposed by any substances which would produce such an effect, if they were in any other position. This was a practical fact; and patients should guard their mouths from such substances, by cleanliness. Its vitality was all that saved the stomach from being dissolved in its own gastric juice. What was the chemistry of the teeth, and what would dissolve them? There was not enough vitality in the teeth to resist external agents, consequently it was necessary to study their composition; and we might say that those substances which would destroy them if out of the mouth, would have the same success while they remained in it. If you destroyed the enamel by extrinsic agents you ruined the tooth.

AFTERNOON SESSION.

The President called the convention to order at half-past four o'clock.

Dr. *Allen* said that he wished to apply practically the theories presented at the morning session. Read a paper, giving the component parts of the teeth, and their chemical affinity with other substances.

Dr. *Taft* desired to refer to the course of the teeth during their early growth. Referred to the formation of the teeth, which he stated was similar to that of the bone tissues.

The mother should exercise care in the selection of food, in order to cause the proper development of the system of the infant. Referred to the subject of food, as to what was proper and what improper at such periods. The admission of bone-phosphate into the food of the child, had been of great importance in hastening and rendering more simple the first dentition. It should be seen that the food of the mother and child contained the articles calculated to aid the growth of the osseous portions of the body. Gave an instance of a case where such precautions had been taken, and with undoubted success in the results.

Drs. *Perkins*, *Searle*, and others continued the subject.

The President then referred to the different affinities of different articles. Spoke of the vitality of the enamel, dentine, etc., believing that such vitality existed, and that no fair experiments could be made upon teeth out of the mouth. Did not think the structure was crystalline; referred to the formation of the dental system.

Dr. *Westcott* spoke in reference to the chemical analysis of the composition of the teeth. They contained 1½ per cent. of animal matter, and in his opinion were little capable of resisting chemical affinity. Thought experiments upon the enamel of a dead tooth, were equivalent to any made upon the live tooth in the mouth. Did not think it a safe doctrine to believe that the enamel had any vitality.

Dr. *Stackpole*, of New Hampshire, thought we ought to build up and strengthen any portion of the system which became weakened. Thought experiments upon dead and live teeth were very different in result.

Dr. *George H. Perine* offered the following resolution:—

Whereas, The members of the medical profession in Great Britain and America are taking measures to raise a monument in memory of the lamented and revered John Hunter; and

Whereas, The dental profession owes in a great measure their present position and standing, and their knowledge of the science of dentistry to the labors of John Hunter—

Resolved, That the American Dental Convention, assembled at their annual meeting in Saratoga, this 8th day of August, 1860, do hereby desire to express their approval of the intentions of their brethren of the medical profession, and recommend to the members of the convention and the profession throughout the United States, to offer such pecuniary aid as may be in their power, for the advancement of this object.

Resolved, That a committee of three be appointed by the convention to communicate with the committee of the Medical Society of Boston, in relation to this subject; and with power to make such provisions as they may deem necessary in the premises, and receive the subscriptions of the profession for transmission to the Medical Committee.

Dr. *Gidney*, of Manchester, England, spoke in favor of the resolution. Every dentist knew who Dr. John Hunter was; he had not known him, as he passed away before his time. Thought the idea of erecting a monument to his memory was a laudable one, and ought to be sustained; hoped the convention would pass this resolution.

Dr. *Atkinson* spoke against the passage of such resolutions; was against hero-worship, and elevating the great ones at the expense of the little ones. The best monument to John Hunter was his works, which every dentist had in his library; was against using the convention in this manner.

On motion of Dr. *Roberts*, the resolution was tabled.

The question regarding a place for the next annual meeting was now discussed. Various places were named—Richmond, Savannah, Lexington, Kentucky, Newport, and others; but it was finally decided that when the convention adjourned, it should adjourn to meet at New Haven, Conn., on the first Tuesday in August, 1861.

The convention then adjourned.

Third Day—Morning Session.

The meeting was called to order at a quarter past nine o'clock, by Dr. *Rogers*, in the absence of the President and Vice-president.

On motion, the third subject on the order of business was now taken up.

IRREGULARITIES.

Dr. *Taft* said that this subject was one of great importance; they had formerly been considered difficult to remedy. This opinion had changed, as the means for cure had developed themselves. As to the causes of irregularity, all dentists are about equally well informed on this point. It was not necessary to say much about them. The remaining of temporary teeth longer than is proper, was often a cause. The real cause, however, lay deeper. When properly developed, the roots of temporary teeth were absorbed about alike. In slow development, there was slow absorption; where the teeth were developed rapidly, the roots were rapidly absorbed. Dr. Taft then gave some instances of irregularity. In reference to appliances for expanding the arch, he described the mode of making them.

The Chair announced the Auditing Committee as follows: Dr. John Allen, of New York; Dr. J. Johnson, of Stanton, Va.; Dr. W. H. Atkinson, Cleveland, Ohio.

Dr. *Searles*, of Springfield, Mass., stated a case of irregularity with his mode of treatment, which was discussed by Drs. *Gouldy*, *Whitney*, and others.

Dr. *Allen* had ceased to use metallic substances in inclined planes, and had substituted rubber.

The subject was continued by Drs. *Talbert* and *Evans*.

Dr. *W. B. Roberts* said no time could be given when an operation could be concluded, and no rule decided; they depended on various circumstances known to the operator. The causes of irregularity were various; thought we had more irregularity in the United States than anywhere else. Compared the jaws of different nations. In a small jaw, of course the teeth would be crowded, and irregularity ensue. The German jaws are one-quarter larger than others; consequently the mixture of races was a great cause of irregularity.

Dr. *Geo. H. Perine* exhibited a case of irregularity, presented by Dr. Gifford, of Westfield.

Dr. *Clark*, of Savannah, also presented a case. The patient was about 12 years of age; the incisors diverged almost on a line with the nose, elevating the upper lip; the bicuspids and molars also diverged one-fourth of an inch, so that no bands could be fitted upon them. Gave his mode of treatment in this case.

Dr. *Covill* remarked on the question of irregularities running in families; thought they were caused by too early removal of the deciduous teeth, resulting in contraction of the arch. Irregularities require time to regulate, in order to make them permanent. Gave a case of irregular development of the lateral inferior incisors.

Dr. *Roberts* gave a case of three in the same family, having five incisors on the lower jaw.

Dr. *Assay*, of Philadelphia, said he had no system, except to be governed by circumstances. Referred to sucking thumbs as one cause, as had been previously mentioned by Dr. Allen. Gave his mode of treating the cases which had been mentioned.

Dr. *Gouldy* referred to the time necessary in regulating cases. He used the inclined plane; washed the mouth with tincture of myrrh, to prevent periosteal inflammation, and was generally successful in three or four days in pushing the tooth forward.

Dr. *Perkins*, of Albany, made some remarks, when Dr. *Colburn*, of Newark, rose and stated that he had practiced in the Sandwich Islands, and had found no irregularities there. In California, among the Spaniards, or in Central America, he had noticed the same facts, agreeing with Dr. Roberts' theory that the mixture of different races was one great cause of irregularity.

On motion, the subjects 4th and 5th were passed over for the present, and subject No. 6 on the order of business taken up.

DISEASED DENTINE.

Dr. *Colburn* stated that he had never had a patient during his southern practice with diseased dentine, except when they lived on American food. It was also there produced by intermarriage with the whites. Thought that wheat flour, containing no phosphate of lime, and which they only ate after intermarriage, produced decay of the teeth. In answer to a question by Dr. Dodge, he stated that the Sandwich Islanders lived principally upon a substance called poy, containing a large proportion of phosphate of lime. In Central America they ate corn-bread, which also contained much phosphate of lime.

Dr. *Dodge* said that in reference to the causes of diseased dentine, other things besides diet should be considered; habits, the amount of sleep, and other customs have great influence. The teeth in their vitality, sympathize with the stomach, and dyspepsia or sour stomach will cause sensitive dentine. He believed there was nervous sensibility in the bony portion of the teeth. Thought caries to be the dissolution of the bony or mineral portion of the teeth, and then the killing of the animal portion by outward agents entirely. We should take every thing into consideration, and not diet alone.

Dr. *Rogers* would refer specially to filling teeth with other substances than gold. Had ascertained that no other metal could be used with safety, on account of the galvanic action. Mentioned gutta-percha as a substitute for metal, and had found it equal to any gold filling he had put in. Dr. Rogers then gave his manner of filling, and stated that he had sometimes found on examining a tooth he had previously filled, a new deposit of dentine under the filling. Gave a case where the pulp was not exposed, and which he had hermetically sealed with gold. On after examination found it refilled with secondary dentine.

Dr. *Morgan*, of Nashville, Tenn., said that he had pursued this subject. Gave a case where he had five exposed nerves; cleansed the mouth, and killed with creosote. After he had filled the teeth, did not see the patient for six months, when he found that one molar had deposited a bony substance entirely covering the nerve. There was no sensibility in the deposit, although the rest of the tooth was sensitive. Thought there had been bleeding from the pulp when he filled it, as the pulp was exposed. The subject was continued by Drs. *Clark* and *Priest*.

Dr. *Roberts* said the most of decay took place between the ages of fourteen and twenty. Some operators, in filling young persons' teeth, preferred tin-foil; desired to know why, and gave his theory with regard to tin taking the influence of the acids of the mouth from the teeth.

A recess of five minutes now took place, when Dr. *Rogers* offered the following resolutions relative to the death of the late ALVIN BLAKESLEY, of Utica, N. Y.:—

Resolved, That this convention has heard with profound sorrow of the death of Dr. Alvin Blakesley, of Utica.

Resolved, That in the death of Dr. Blakesley, the profession has lost one of its oldest, most enthusiastic, skilful, and honored members; one with whom it was ever our delight to meet and take counsel, and who was endowed with so many of the best qualities of mind and heart, that none knew him but to love him.

Resolved, That we hereby tender to the widow, children, and other friends of the deceased, our heartfelt sympathy in their affliction.

Resolved, That these resolutions be published with the proceedings of this convention, and a copy of them be forwarded to the widow of the deceased.

Dr. *Rogers* prefaced the resolutions with some remarks, in which he spoke of the eminent worth of the deceased, both as an able and eminent practitioner, and as a worthy and honorable man.

He was followed by Dr. *Perine*, who had known Dr. Blakesley from his boyhood; had studied under him, and associated with him in practice; knew him to be a man of fine feelings, an affectionate husband, father, and friend; he was also a *dentist* in every sense of the word, and exhibited the strongest desire to elevate the profession, of which he had been an honorable member for so many years, having been one of its pioneers in this state.

Dr. *Allport* made some further remarks, when the resolutions were adopted by the convention, and a copy ordered to be sent to the family of the deceased.

The Auditing Committee now presented their report, when the subject of *Sensitive Dentine*, being next in order, was taken up and discussed by the convention.

Drs. *Priest*, *Dodge*, *Perkins*, and *Assay* spoke upon the subject.

Dr. *Franklin* stated that the cause of sensitive dentine was *acid*, and the remedy *alkali ;* the sensitiveness of teeth was caused by acids, proceeding from particles of food lodged under the gum. Gave a case of a patient, whose teeth were so bad that they could not be filled, resulting from dyspepsia ; he recovered by the use of alkali. Spoke of the prevailing system of diet, and its injuriousness to the teeth. Would suggest the use of alkaline agents as a curative.

Dr. *Burras* said that the cause of sensitive dentine was diseased dentine; we should consider the position, structure, etc., of the teeth. Referred to hereditary disease in teeth, and had confidence in its existence as a fact. Gave a case where the lateral incisors were wanting in the father, one in the first child, one in the second child, while both were present in the third child.

Dr. *Colburn* spoke of the effects of acids. The natives of the Sandwich Islands kept their food until it became acidulated, yet their teeth were sound and good.

Dr. *Taft* then read a paper upon this subject, which will be found in the *Dental Register of the West.*

Dr. *Morgan* endorsed an idea, advanced by Dr. Taft in his paper, that sensibility of the dentine was its normal condition.

Dr. *Priest* said that the cause of decay was lack of life-force rather than any action of external agents. We must be born right or we cannot have good teeth.

Dr. *Atkinson* wished to know why dentine should be sometimes sensitive and at others not. An over-amount of lime in the teeth might arrest their sensibility. Had thought there was some bond of union between the dentine and the enamel. Did not think there were nerves in the teeth, but some means of transmitting sensation to the nerves. We should consider nationalities, crossings of blood, etc. Referred to the influence exerted by the operator upon the patient.

A motion of Dr. *Westcott* to reconsider the vote assigning the next meeting of the convention to New Haven was lost.

On motion it was agreed to adjourn finally on Friday, August 10th, at one o'clock. The convention then adjourned.

Afternoon Session.

The subject of "Exposed, or Wounded Pulp," was continued by Dr. *Taft*. Dries out the cavity, and fills temporarily; caps the nerve, sometimes using os-artificial, or bone filling, and in half the cases finds a secondary bony deposit which protects the pulp; over this deposit he puts his permanent filling. The operator should know the constitution of his patient. Wished to know to what extent the pulp must be diseased to deserve destruction. The same treatment would answer for the pulp that would for any other organic portion of the system when diseased. A dead tooth is only worth half as much as a live one, as it is liable to periostesis, abscess, and other diseases, to a greater degree than the living tooth. The same principles of treatment are applied to diseased pulp as to other diseased portions of the body. First remedy the constitutional difficulty, then apply your local and topical remedies. Remarked on this treatment of diseased and exposed pulp.

Dr. *Westcott* met with no success in the treatment which had been given for exposed pulp, viz.: covering with Hill's stopping, and building up with gold and tin-foil. Did not think the liability to decay was greater in a dead tooth than in a live one. There were pathological difficulties resulting of greater importance. If you stop up the cavity, rendering it air-tight, you kill the nerve. After the nervo was exposed he could not save it. The best way to destroy a nerve was to extract it with a broach; then fill the root to the apex. Never had a case of abscess follow this operation. Covered the nerve with cotton, then dried out the cavity perfectly, and filled with tin-foil temporarily. Had left it then six months. No pain followed this treatment. Thought that discoloration resulted from the permeation of dead matter. Thought that the smallest quantity of arsenic used to destroy the nerve the better.

Dr. *Atkinson* referred in terms of respect to Dr. Westcott's mode of treatment. We often selected the proper remedy without apportioning it right. Referred to the deposition of secondary dentine; thought such a deposition existed in a crystalline and transparent state.

Dr. *W. H. Dwinelle*, of New York, said that, with regard to filling over an exposed pulp, destroys the nerve if the tooth is diseased; but if the tooth be healthy, patient healthy, and only slight exposure, he treats with camphor or chloride of zinc; seals up and fills the tooth. Has never discovered the death of a nerve thereafter. As to secondary dentine, a child's tooth is but a shell to receive secondary dentine. Has half a dozen cases of secondary dentine formed over nerves. The inflammation aids the formation of this dentine. Used frequently creosote alone; dried out the cavity very dry; dropped a small portion of creosote on the nerve, manipulating it with a broach. Absorbs out the creosote, and repeats the operation until the nerve is completely dead.

Dr. *Wetherbee* said that he doubted the practicability of saving exposed nerves by any process whatever. When you insert a plug air-tight, you cause hydraulic pressure, which must destroy the nerve; other changes tend to destroy it. If the patient can bear the pain, he extracts the nerve; if not, he destroys it by arsenic, and has no difficulty following it. Gave a case where the arsenic was left in a day, and the nerve not extracted. Of course, ulceration followed the filling. Gave his treatment of the case. As to new dentine, it requires ten years to deposit the thin layer of natural dentine in the teeth.

Dr. *Rogers* spoke of the errors committed by the profession in not recognizing the presence of dead nerves. The best practice was to extract the nerve and then fill; for the other cases they are exceptional. If you left arsenic in the tooth a length of time, you would destroy the tooth.

Dr. *Roberts* gave a case of a sensitive nerve filled over and ulcerated.

The convention then adjourned.

Fourth Day—Morning Session.

The convention was called to order by the President at ten o'clock. The subject of *Exposed, or Wounded Pulp*, was continued.

Dr. *Colburn* would be glad to hear with regard to excising the nerve.

Dr. *Clark*, of Savannah, remarked on phlebotomy, after filling, on the nerve. Had tried this with success at first, but afterward found it resulted unhappily, and abandoned it. Never attempted to save an exposed nerve. Used arsenic, and left it in generally twenty-four hours. Always destroyed, removed, and filled to the apex. If bleeding did not ensue after removing the nerve, had no hesitation in filling. Referred to the different conditions of exposed pulp, and described his treatment in each. Used Darby's prophylactic fluid to cleanse and purify the nerve cavity in case of ulceration. Staining was produced by imperfect fang-filling. Had not had one failure in fifty cases of such filling. In cases of atrophy he feared to operate; considered them the most troublesome and dangerous cases. Had no confidence in filling over exposed nerves.

Dr. *Atkinson* spoke on the subject of wounded nerves. Proposed capping with a non-conductor; where the nerve was in a healthy condition had never seen a tooth lost with this treatment.

Dr. *Morgan* said that he did not always destroy the exposed nerve. Could not conceive of a healthy dead tooth; if there was no tendency to neuralgia, filled over the nerve, if healthy. If filled directly on the nerve, thought suppuration would follow; so he left an arch over the nerve. Referred to the formation of secondary dentine. If there was inflammation, destroyed by arsenic and creosote. Covered with wax or Hill's stopping, without touching the nerve; extracted the nerve and filled the fang. Rarely found perfect fang-fillings in the more difficult cases, as in the inferior molars. Gave a case of first lower molar; there was very considerable exposure of the nerve. Afterward found discoloration and softened bone, and a deposit of insensible bone.

Dr. *Dwinelle* gave a case of the frontal incisors, with exposed pulp' cavity in the entire breadth; slightly wounded the membrane, but no bleeding ensued; treated with camphor, and made a plate arching over, and filled entirely across; this took place eight years ago. Four years after the teeth were alive. As to a wounded nerve not being able to recover its normal condition, believed it could as well as a sore finger. Desired to plead for the dying nerve. Gave a case where the nerve bled, was filled, and on being opened a secondary formation of dentine was found. Had examined such cases microscopically, and had specimens. Was more successful in young subjects, where there was the greatest vitality. As to sensitive dentine, had a theory that the nerve canal had no direct connection with the dental tubuli, but that there was indirect connection. Although the tubuli were infinitely small, they were filled with a fibrous membrane. As discovered lately by Dr. Tomes, sensibility is induced, communication is indirect. The point of communication is a fluid between the membrane and the dentine. Referred to bleaching the teeth when stained by rupture of the blood-corpuscles. Used chloride of lime, chloride of soda, and sianite of potassium, if stained by nitrate of silver.

Dr. *Rogers* did not consider that there were any number of cases sufficient to make a rule, where teeth were filled over the exposed pulp and saved. In nine cases out of ten you would, on removing the filling, find it dead. Proposed to take two cases and treat them in this manner; in two years you would not find them alive. When a nerve was slightly exposed, nature endeavored by some process to protect herself, by building over, although inflammation sometimes succeeds. Gave a case of molar teeth; had been neglected; and, in excavating, uncovered but did not wound the pulp; capped it with lead, and filled with tin-foil. At the end of six months, withdrew the filling and found no sensation. After examination with an instrument, found the cavity filled with dead matter. As to sensation of the dentine, when the membrane was destroyed, he was not sure of its existence. Gave a case of a dead nerve, where sensitive dentine ensued; thought the dentine being sensitive did not prove that the nerve was not dead. Spoke in reference to the method of destroying the nerve.

Dr. *Covill* had had some success in saving slightly-exposed nerves. Never discovered newly-deposited bone. In relation to excision of the nerve after filling, had never been able to perform the operation.

Dr. *Allen* said that he should again renew practice he had abandoned, viz., to cap and fill over exposed nerves, on account of the facts elicited by these discussions.

In answer to questions concerning the sensibility of dentine and other points, Dr. *Dwinelle* drew a plan of a section of a tooth, and explained his ideas. [These formed an extremely interesting portion of the discussion, and were listened to with much interest; they were, however, so lengthy, that we were unable to find room for them. In our October number, we shall present a paper by Dr. Dwinelle, giving his ideas upon these subjects.—Ed.]

Dr. *Pease*, of Ohio, gave a case where the nerve was removed and exquisite sensibility followed.

Dr. *Whitney* gave his mode of practice in cases of exposed nerve. Applied so small a quantity of arsenic that no unhappy results could follow, no matter how long it remained in.

Dr. *Wetherbee* had found sensation in dentine after the destruction of the nerve. Believed if there was any connection whatever between the cementum and the dentine, it proved ability for sensation. When he had capped the nerves they had died.

Dr. *Teft*, of Vermont, used arsenic and morphine with tannin. Did not extract the nerve.

Dr. *Rodrigues*, of Charleston, South Carolina, proposed as a subject for discussion at the next meeting—*Quicksilver in the Bones.* Referred to the Executive Committee.

Dr. *Atkinson* read a paper on *Dental Teachings.*

On motion, the President was appointed to make provisions and arrangements for the next meeting of the convention.

Dr. *Franklin* gave a case where the roots of two central incisors were extracted, and two imported teeth, which had been preserved in alcohol, were inserted immediately in their place. The teeth for sixteen years had remained perfectly sound.

Several new discoveries, inventions, etc., were then laid before the convention by Drs. Taft, Perine, Franklin, Assay, W. B. Roberts, and others.

After a few appropriate remarks by the President, the convention finally adjourned.

ARTIFICIAL DENTURES.

Paper read by Dr. John Allen, of New York, at the Sixth Annual Meeting of the "American Dental Convention," held at Saratoga Springs, August 7th, 1860.

In the construction of artificial dentures, there are many important considerations that might be dwelt upon with interest would time premit, but on this occasion we will dwell mainly upon two leading points which lie at the threshold of this branch of our profession; for success in this department depends upon beginning right, and keeping right, in order to come out right.

We will first consider the attainments necessary for the dentist who constructs artificial dentures as they should be (for here is the starting-point), and secondly, the modes employed in their formation. It is said there are five hundred causes for the stopping of a watch. If this be true (and the books affirm it), how many causes are there that would defeat a good practical result in forming a set of artificial teeth? From the taking of the impression, through all the different stages of the work, to the final completion of a denture, various causes may occur, either of which might prove fatal to perfect success. In order to prevent a defeat from any of these causes, let us look for a moment at the requisite acquirements for him who is to reproduce those organs which nature, with all her perfections, had previously formed; for whatever be the mode, he will have much to learn, for it is the height of art to conceal art. This, together with practical utility, should be the great point aimed at in the construction of artificial dentures; and he who attains this end must be an artist in the true sense of the term.

This requires thorough mental culture, and careful scientific research. According to our best lexicographers, an artist is one who is skilled in the practice of some art in which science and taste preside over the manual execution, and in which the mind is chiefly concerned. It is thus that the artist is distinguished from the artisan. One copies from the works of nature in executing his designs; the other from the devices of man. The artist finds resources in his own mind; there they are concealed from the world, and no human power but his own can bring them out; while the artisan works by fixed rules and principles which are transmitted from one generation to another, and serve as unerring guides for the mechanic.

A dentist who constructs artificial dentures as they should be, must possess both of these acquirements in a high degree, for the great variety of cases that may occur in his practice will require the skill of the artist to conceive, and that of the artisan to execute, in order to meet the various exigencies involved in his operations, for he encounters some new phase in each succeeding case. In one instance he has to insert teeth not more than the fourth of an inch in length, which, even then, appear too long; in another, those of an inch in length appear too short. Mrs. A. requires very large attachments to restore the sunken portions of her face, while Mrs. B. can scarcely bear the thinnest plate in her mouth without producing distortion.

The light and darker shades; the peculiar tints and tone of the teeth and gums; the size, form, position, and expression of these organs; together with their perfect adaptation and harmony with the other features of the various persons for whom they are intended, require the finest powers of discrimination and manual execution in order to conceal the art employed in forming them, which can now be done more perfectly than at any former period in the history of man. But to do all this, the operator must possess a knowledge of several other branches of art and science, that he may bring to his aid such auxiliaries as are necessary to accomplish his purpose.

Metallurgy will claim his attention, that he may know the nature and properties of the various metals used, and the modes of preparing them for dental purposes. He must also understand something of mineralogy, that he may be able to characterize, distinguish, classify, and apportion the various minerals used in his profession, together with the art of converting them into artificial dentures, especially if he does continuous gum or block work. Our dental colleges and the community require of him a knowledge of anatomy, physiology, chemistry, and therapeutics, together with the principles and practice of dental surgery. He must also possess mechanical skill, which involves an insight into several of the trades, such as working the precious metals, modelling, moulding, casting, etc., etc., and the different degrees of expansion and contraction that may occur in these processes. In short, he should be a sort of compound man, embodying several other branches of business in order to perfect his own.

All these form only the foundation of his professional career; the superstructure has yet to be built, which requires energy of character in order to grapple successfully with the difficulties he will have to encounter. He also requires the mental capacity of a skilful tactician, that he may win and retain the confidence and esteem of his patrons, so that each may add strength to his professional merit. And to crown all, he should be a perfect gentlemen, with all the accomplishments that adorn his title.

With these acquirements, we claim for him a position in the front rank of his profession, although many of the leading dentists in various parts of this country, as well as in Europe, lop off the artificial branch from their practice after a few years, or pass it over to those of less professional capacity. Hence, a respondent says, that very many of those who construct artificial dentures, do not possess all these qualifications; that they are not artists; that in the execution of their work they do not approximate so near to nature as to conceal the human agency employed; that there is a want of proper tone, expression, adaptation, and practical utility, in part, if not all of these essentials; and that their dentures exhibit a stiff, mechanical appearance, that enables every beholder to spot them at once as artificial teeth; and hence the subordinate position of the mere mechanical dentist, whose claims to supremacy are small, and whose merits are still less. Alas, alas, this is too true! for such we do not claim an elevated position; but it does not follow that the well qualified should be placed upon the same level with those who form the lower ranks in this department. No; let those who occupy the more elevated position stand firmly where they are, and not relinquish to their inferiors that branch which is of so much importance to the civilized world.

Let those who are below ascend to the higher ranks, bringing with them science, art, and skill; gathering all along their pathway, here a little and there a little, in order to fill up the store-house of knowledge, from which success must flow.

In reference to the various modes of constructing dentures now in use, they all seem to have their place, and may be adopted under the different circumstances attending each particular case.

When consulted, an operator should examine carefully, and then decide as to what method will secure to the patient the best practical result and most personal gratification, and then advise accordingly; bearing in mind that whatever be the mode—skill, taste, and judgment must preside over the operation, for there is no system so perfect as to render these unnecessary, and the further the method is from yielding results true to nature, the harder it is for a dentist to construct his work so as to elude detection in the mouth.

In this respect we have been able to approach much nearer the acme of our ambition, by means of the continuous gum system, than by any other with which we are familiar. Objections are urged against every mode in use, some of them real, others speculative; but as time will not permit detail, I deem it proper to dwell more particularly for a short time, upon continuous gum work, although this term does not convey an adequate idea of the full embodiment of this system.

As this style of work speaks for itself, nothing we could say by way of eulogium would add to its merits. In this, as in many other things, a defective result may be owing to one of two causes. First, if the mode or principle employed be defective, a perfect result cannot be obtained. Secondly, though a principle be correct, and clothed with a body never so perfect, still, a want of experience or skill in manipulation, in carrying out that principle, may prove equally abortive. Two artists, so called, may employ the same general principle, use the same materials, and bestow an equal amount of time and labor in painting each a picture; one will produce a perfect prototype of nature, while the other will make a mere daub. The difference between the two pictures consists in the manner of their execution, not in the principle. A correct principle, therefore, should not be condemned because A, B, or C fails to produce satisfactory results, when it is clearly demonstrable that good practical ends can be attained by others.

Now, with reference to this method, we claim that the principle is a correct one, and combines more advantages and fewer objections than the older modes, especially in full sets, or large pieces of six or eight teeth. But we will notice the objections. It is said by some that dentures made in this way are too heavy. This objection is merely speculative, but when clothed with plausibility it appears to the inexperienced mind to have *great* weight; but those who have tested well adapted dentures of this kind, find that this theory has *no* weight practically, for with a good fitting plate a patient cannot perceive the difference between a denture weighing five or fifteen pennyweights when in the mouth; it is only in the hand (where there is no suction) that the difference is perceptible. Another objector says that they are too solid, and will not yield sufficiently when biting upon them; that they ought to have joints and crevices, so as to spring in the mouth. This is an erroneous theory, for the natural gum under the plate possesses all the flexibility necessary for practical purposes.

Mrs. W. says they are liable to break when dropped in a wash-bowl or upon the floor. The best remedy for this is to not let them fall. Do people continue the use of pewter plates because china ones are liable to break if they fall? Shall we discard the use of watches because they may be injured by a similar accident? But Dr. B says if a tooth gets broken it cannot be repaired. This is also an error; a single tooth, or any number required, can be reinserted with comparatively little trouble to one who is accustomed to this style of work. But another objector says they clatter in the mouth and make too much noise. True, they have made considerable noise in the world, and will continue to make more, but the clattering when a person is talking or eating should be avoided. This usually occurs from one of two causes (sometimes both): either from the lower plates being too wide, or the teeth too long. Lower sets of artificial teeth are usually more difficult of adaptation than upper ones, owing to the great amount of absorption that may have taken place on the lower jaw, leaving scarcely any ridge or foundation for them to rest upon; and in some instances the place where the alveolar ridge ought to be, is only designated by a deep hollow, with muscles, ducts, and glands almost closing over it. These tend to buoy up the denture, and keep it afloat in the mouth, which would cause the clattering referred to. In order to avoid this, the impression should be taken with great care, to prevent the inner folds of the cheek from overlapping the alveolar ridge (or rather hollow), by raising these folds with the fingers when the impression is being taken from which the plate is to be formed.

When the submaxillary ducts, or sublingual glands, or their connecting fibrous tissues, raise above the hard ridge when the tongue or muscles are moved, the base must be so narrow as to allow them to pass up on the inside of the plate and teeth without dislodging the denture. For such cases the plate should be very thick and narrow, with smooth, round edges, and the teeth should be quite thin. Again, if the back teeth are too long, a similar difficulty will be experienced by the patient, which can be easily remedied by shortening them. Dr. D. asserts they are liable to break by use in the mouth. Does any other method fail? We are prepared to show that when continuous gum work is properly constructed, the per cent. of breakage is far less than by the old methods. We will now look at some of the reasons why this style of work fails. In most instances where this occurs, they can be traced to some defect in the manipulation, or want of judgment in the construction. One of the common defects is in soldering the teeth to the plate. Platinum (unlike gold or silver) absorbs the solder commonly used, so that if the joints are not perfectly fitted, the gold solder will become absorbed by the subsequent heatings, which then leaves no metallic union between the teeth and plate. To prevent this, the inside rim or stays should be in positive contact with the base-plate, and then firmly soldered. Other defects occur from want of experience with the furnace. A piece may be over or under baked, or not properly annealed, either of which causes the body and gum to be brittle. To avoid this the first bake should scarcely gloss the body; the second a little harder; and the last, or enamel heat, a little higher than the preceding. This will give an even temper to the piece, and prevent crazing or cracking if it be properly annealed, which consists in leaving it in a heated muffle for several hours after it is withdrawn from the muffle in which it was fused.

Defects also occur from an apparent want of judgment on the parts of the dentist, who constructs all his cases about alike in point of strength; whereas some pieces require to be at least four times as strong as others. For example: if an upper artificial denture antagonize with a good set of natural lower teeth, the strain in masticating will be much greater than if artificial teeth are also worn below. The strength should be according to the requirements of each particular case. While in one instance a thirty-one plate in thickness would be strong enough, in another twenty-eight, with a double or triple inside rim, wonld be none too strong. Let it be put down as a fixed fact, that continuous gum work can be made strong enough to meet the requirements of any case, provided judgment and skill preside over all parts of the operation. This can be attested by the thousands who are now wearing this style of work. Although there are those who still descant learnedly upon the subject, and have come to the sage conclusion it will never do.

So said those who opposed the theory of Gallileo, when he proclaimed to the world that the earth turned upon its axis; and although compelled to sign his recantation, he could not suppress the conviction, which gave utterance to the ever memorable expression, "But it does go." So with continuous gum work—it does go, and ever will, while artificial dentures continue to be made.

EDITORIAL.

THE AMERICAN DENTAL CONVENTION.

THE Sixth Annual Session of the American Dental Convention was opened at Saratoga Springs on the seventh of August, and closed on the tenth, after an extremely interesting and instructive meeting. More than one hundred members were present; the subjects for discussion were well selected, and debated with much earnestness by some of the best minds of the profession. The place selected for the meeting put forth its brightest side, and after the excitement of the convention it was very pleasant to visit the springs, to listen to the music, and to see the light feet dancing in the great hotels, and the many-hued garments sparkling under the gas-light. We like the plan of selecting watering-places, and other summer magnets of attraction to the gay and light-hearted, as the places of meeting for their annual gatherings; and we think the result of selecting New Haven as the next place, will not be as satisfactory as would Newport, which was also strongly advocated.

We would suggest in the kindest spirit to the members of the convention, that before the next meeting they should devote some little time to the study of "Jefferson's Parliamentary Manual," or some similar work, that they may be competent, if called to fill the position, to govern an assemblage of intellectual men, with some degree of propriety and consistency. We regret to say that our conventions are lamentably ignorant of the first principles of parliamentary rule.

We were sorry to see the summary manner in which the resolution complimentary to the great JOHN HUNTER was tabled. It would seem to us that it would have been more creditable to the convention if they had requested the presenter of the resolution to withdraw it, if they were unwilling to consider it. At present, however, they have brought upon themselves the stigma of having contemptuously tabled a resolution offering to do honor to the man who, of all others, ought to be considered the father and pioneer of dental science. While the medical profession in Great Britain and America are liberally pouring forth their subscriptions toward raising a monument to the memory of this great and scientific mind, the dental profession alone have kept silent. We cannot think this creditable, and hoped that the resolution we have mentioned would have met with a better reception.

NEW YORK CITY DENTAL SOCIETY.

This Society has had its regular meetings since our last issue, besides several extra meetings. We are unable to give any of the proceedings, as the Secretary, for some reason or other, has not obliged us with his minutes, although several times solicited to do so; hereafter we shall make arrangements to obtain our own reports of the meetings. Among the most important acts performed by the Society, was the appointment of delegates to the National Convention at Washington. This move was, however, killed by a minority, during the absence from the city of several members, by its opponents, Drs. Franklin, Burras, and others. We regret to see self conflicting with the interests of the profession. We may refer to this subject again.

THE NATIONAL DENTAL ASSOCIATION.

This organization held its first meeting July 31st, at Washington, D. C. As will be seen by our report, the meeting was fairly attended, and considerable information elicited from the remarks of the speakers. The Pennsylvania delegation was the largest. We regret that by the finessing of some two or three members of the New York City Society, no delegation was sent from our city.

NEW YORK STATE DENTAL ASSOCIATION.

A meeting of this Society took place at Saratoga Springs on Thursday evening, August 9th, pursuant to a call of the President. Owing to the presence in town of so many dentists, a quorum was assembled, and the society proceeded to business. A committee was appointed by the President to organize a dental institute, draft a constitution, and report at a future meeting. The Society then adjourned to meet in New York in September next.

We were obliged to omit in the present issue Dr. McKenney's description and cut of his improved lamp, owing to the lengthy reports of our dental conventions; we shall give them in our next number.

It frequently occurs, when a journal or other publication changes hands, that some of the subscribers get overlooked, and consequently do not receive their numbers. If this should occur with any of our own subscribers, we shall be obliged if they will immediately notify us of the fact.

W. B. Roberts,
649 Broadway, N. Y.

AMERICAN HARD RUBBER COMPANY *vs.* JOHN T. TOLAND.

Dr. John T. Toland, of Cincinnati, spent a few days in this city on his return from the meeting of the American Dental Convention at Saratoga. His visit created quite an excitement among the knowing ones in the profession, as it was rumored he was collecting evidence to sustain him in contesting the suit brought against him by the American Hard Rubber Co., for infringement of the Goodyear patent. If Dr. Toland, upon his final trial, should produce the evidence which we are credibly informed he has collected while here, we can see but little hope of success for the company.

We have been of the opinion that if the Hard Rubber Company wished to sustain their patent, they would have an easier task in some other place than in Cincinnati, as the past plainly proves that the Buckeye boys have a particular aversion for dental patents, and a peculiar faculty for finding out all the weak points of a patent, if any exist.

From our personal knowledge of Dr. Toland, we believe him to be a true Buckeye, and one who discards the word retreat from his vocabulary. The fact of his having been seen perambulating the Central Park arm-in-arm with the agent of the Hard Rubber Company has not weakened our faith in his intention to perform the duty he owes himself and the profession in the west. Now that the war has been carried into Africa, we anticipate a lively time, and predict that the Hard Rubber Company will have sufficient employment other than selling rights, for some time to come. We shall wait with patience for the smoke to clear up, in order to see who are among the *killed, wounded, and missing.* W. B. Roberts.

We would call the attention of our readers to the paper read before the convention on *Artificial Dentures*, by Dr. John Allen. We shall endeavor in some future number to express our views upon this excellent and instructive article. W. B. Roberts.

TO OUR SUBSCRIBERS.

The present number closes the third volume of the New York Dental Journal, and with it our obligations to its former publisher—as we agreed to furnish all the subscribers with this volume complete. We find many complaints are being made by subscribers, of not receiving their numbers; and if received, it was a long time after they were due. We are believers in punctuality, and consider it the main-spring to insure success in all kinds of business or trade; we therefore ask our readers to give what we here propose a careful perusal; and if we are in the wrong let us know it at once; and if in the right, comply with our little request promptly, and we will guarantee to perform our part with equal promptness. If we do not, we will refund all moneys received—as it would be getting it under false pretences. Most of the subscriptions to this Journal commenced with the July number, which is in the middle of the volume. In order to have our books put in order, and to have all our subscribers understand how their accounts stand with us, we propose to do as follows: To make out all accounts to January 1st, 1861, which will close all accounts for this and previous volumes. As our rule is two dollars a year in advance, we make our account for volume four, commencing January 1st, 1861, and ending Jan. 1st, 1862. All these accounts are payable to us at 649 Broadway. All subscriptions to our fourth volume must be received at or before the first day of January, 1861, as we shall not send our January number to any one who has not paid in advance; by this means we shall ascertain who are our *bona fide* subscribers, and promise them the same punctuality in forwarding the numbers on the first of January, April, July, and October. As they show to us in forwarding their money, we hope to make this journal of sufficient interest to the profession, so that they may feel that their two dollars have been well invested. Hoping to hear promptly from all who wish to continue or discontinue their subscription, we respectfully render the following statement of accounts:

New York, Sept. 1st, 1860.

Dr. ————

To New York Dental Journal Dr.

To subscription to Journal to Jan. 1st, 1861, . . . $

To Vol. IV., Jan. 1st, 1861, to Jan. 1st, 1862, . . . $

Please Exchange

By forwarding the above amount to my address, 649 Broadway,
You will oblige,
W. B. ROBERTS.

[It may be well to say to those with whom we exchange, that since the first of July our address has been as above.]

THE

NEW YORK DENTAL JOURNAL.

OCTOBER, 1860.

ON OUR PRIZE ESSAYS.

When we concluded the arrangement by which we assumed the publication of the New York Dental Journal, it was too late to publish the July No. at its usual time; we therefore delayed it, in order to give the reports of the Dental Conventions held at Saratoga and Washington, and the number did not reach many of our subscribers until early in September. We had offered a series of prizes for essays upon *Impressions, making metallic dies and plates*, and *lining and soldering teeth;* all essays to be sent to our office, at or before the 15th day of September. The late hour of publication gave but a few days to dentists who wished to write, to prepare their articles; and those who embraced the opportunity could not do justice to themselves or the subject, for want of time. The prompt response we have received to these offers for prize articles, has exceeded our most sanguine expectations. We have called forth the light long hidden in the laboratories of the profession, and practical articles have come to us, a careful perusal of which may instruct and interest our most learned and scientific brethren. In our haste, we did not in the last number lay before our readers a full view of the course we intend pursuing with our Journal, in regard to *prize articles*; we will endeavor to do so now.

We shall take both mechanical and surgical dentistry, commencing at their rudiments, and divide them up under appropriate heads for essays. In MECHANICAL DENTISTRY, we have commenced with the subject of *Impressions*, as published in the present number; to be followed by the subjects of "*Making Metallic Dies and Plates*," "*Taking an Articulation*," "*Arranging Teeth*," "*Lining and Soldering Teeth*," "*Polishing Plates*," "*Baking Continuous Gum-Teeth*," "*Making Rubber Plates*," "*Vulcanizing Rubber*," *etc., etc.* In SURGICAL DENTISTRY, we shall begin with "*Extracting Teeth*," and follow this by articles upon "*Cleansing the Teeth*," "*Treating Diseased Gums*," "*Preparing a Cavity for Filling*, "*Treatment of Sensitive Dentine*," "*Treatment of Exposed Nerves*," *etc., etc.* We shall divide and subdivide these subjects, if necessary, and shall offer suitable prizes for the best essay upon each subject. We may from time to time publish several or all of the essays handed in, upon any subject, should they be considered worthy a place in our JOURNAL, although not winning a prize; we would, therefore, say that according to our first proposition, we are entitled to do so, as *all articles sent us become the property of the* JOURNAL; but as some might construe such action as piracy, we shall present to the writer of each article so published, the NEW YORK DENTAL JOURNAL for one year *gratis*, or its equivalent, dating from the publication of the article. Now, as we have adopted this course to obtain articles for the JOURNAL, it would be well to state, that our sole object is to call out the best practical articles in the profession; but we do not wish it to be understood, that because we award a prize to any one for the best essay upon the subject given, that this is necessarily the best article that can be written upon the subject by any member of the profession; we only mean that it is the best we have received, and we shall hold all our articles thus published open to criticism and review, and hope that any one who can spare the time *will* review and criticise the articles, and we will agree to publish all such reviews, so far as it may be of interest to the profession. We have published in the present number of the JOURNAL only the prize essays upon the subject of IMPRESSIONS, and such others as we have considered worthy of publication; hereafter we shall follow the same plan, giving the prize essays upon both surgical and mechanical Dentistry, with our selections from among the other essays presented. The subject in Surgical Dentistry which we have selected to be written upon for our next number, will be "*Extracting Teeth, and the Instrument used in the Operation*"—for the best essay upon this subject we offer a complete set of forceps; for the second best a set of Roberts' Wisdom-teeth forceps.

The subject in Mechanical Dentistry for our next number will be the same as mentioned in our July No.—"*Making Metallic Dies, and Swaging Plates*," and the prizes will be the same as therein stated—viz., all the articles necessary for making dies and plates, for the first prize, and Taft's Operative Dentistry for the second.

The subjects and prizes for our April number will be given in the JOURNAL for January, and so on, in each number we shall state the subjects and prizes for the succeeding one. Articles must in all cases be sent to our office, on or before the 15th day of the month preceding the date of publication. We shall submit the essays to two committees, each comprising five gentlemen of the dental profession, whose ability to judge of the merits of the articles presented will not be doubted.

All articles will be handed to the committee, with the names of the writers detached, so that no member of the committee will know the names of the writers until he has passed his judgment.

We would further say in regard to these essays, that we may take occasion sometimes ourselves to express our own views upon them, and hope we shall not be considered impertinent; we would now give notice to those furnishing us with essays that there is a vast amount of talent and practical experience in our profession, and should they diverge into collateral issues, or advance vague and impracticable theories, they may be severely dealt with under the head of *Review* and *Criticism*. Write practical facts, and ,tell us exactly what you do in the case under discussion; in this way, we shall be able to get at a large amount of fact and truth without hard feelings or personalities. We wish articles written in such a manner and style as shall enable us in reading them to form an opinion of their authors, and fancy we are peeping into his laboratory, seeing each instrument he uses in his manipulations; whether he keeps his office nicely, or slovenly; and, in fact whether he is a clever fellow or the reverse.

We now leave this subject for the present, thanking those who have so promptly responded to our propositions for prize essays.

We would also state that several essays upon making metallic dies and plates have reached us, which will be submitted to the committee in their proper order, and the prizes awarded.

W. B. ROBERTS.

ON TAKING IMPRESSIONS.

By Geo. T. Barker, D. D. S.

The importance of perfect impressions for artificial dentures, must be acknowledged by every practitioner who values and truly appreciates the responsibilities of his profession, and without doubt the most fruitful cause of non-success is due to the non-performance of this one duty. That there is much room for improvement in this branch of our art must be apparent to every thinking mind. For convenience in treating this subject, I would divide the taking of impressions into four parts, viz.:

First. An examination of the mouth.

Second. The preparation of the mouth.

Third. Choice of material.

Fourth. The different methods for obtaining perfect impressions.

An examination of the mouth of the patient is of the first importance, and should be accomplished in a thorough and perfect manner. If the case presenting is one requiring a full denture, the mouth should be examined, to ascertain that no roots are present in the alveolar arches, that will destroy the adaptation of the plate to the mouth. Should the case be one where a temporary set is desired, and it is necessary to extract a number of teeth, each should be separately examined, and such selected for extraction as may be carious or of no value. If, however, the examination should prove all the teeth, with the exception of two or three, to be defective, I should recommend the extraction of all of them, being governed of course by the position and particular teeth; for instance, were the sound ones either the superior or inferior cuspidati, would not under all circumstances advise their removal.

The gums, saliva, and particularly the soft parts covering the alveolar and palatine processes should be carefully examined, care being taken to remember their general condition. If the gums be found in an inflammatory condition, induced by carious teeth, salivary calculi, or other local irritants, it should be noted as requiring treatment. The saliva should also be looked to, and if abnormal, the operator should ascertain if due to local or constitutional causes; if to the former, he should recommend the proper treatment.

On examining the soft parts, care should be taken that there exist no fissures formed by folds of the mucous membrane on the palatine processes, that will destroy the adherence of the denture. Where such are present the parts should be separated with small instruments, that the depth may be ascertained, so that alteration and allowance may be made in the plaster model. The dental practitioner will also meet with cases where the slightest touch of the finger to the soft parts covering the palatine process will produce a constant tendency to emesis; with such patients it is useless to attempt to obtain an impression, but would direct them to return home, and that several times each day for one week, a silver spoon should be placed in contact with the hard and soft palate; by such treatment the tendency to emesis is overcome. Having noted the condition of the mouth, and the teeth that require extraction, I should next proceed to the preparation of the mouth.

The extraction of the teeth should be accomplished in as short a time and with as little violence as possible to the surrounding parts, that union by the "first intention of Hunter" may be induced in the lacerated soft parts. If the gums be inflamed, from causes above referred to, bleeding should be encouraged by repeated washing of the parts with warm water. The sharp projections of the process should be removed by means of cutting forceps that the tongue may not be injured by contact, and loose patches of gum may be cut away with scissors.

The mouth being properly prepared, the next subject for consideration is to obtain an impression; this may be taken immediately after the extraction of the teeth, or at a subsequent period. The former I prefer, and usually wait only until bleeding has ceased before taking an impression. Having decided so to do, the next subject of thought should be of the material best adapted, and what would furnish the best results. The choice of material must be governed by circumstances, of which the operator alone can judge. Should the case be one requiring only the anterior teeth to be replaced and be retained in position by means of clasps, it may be advisable to take the impression with wax alone; but in such cases would usually prefer to take one first with wax, and, after trimming it slightly, pour over it a small quantity of thin plaster, and again return it to the mouth, and so obtain a good plaster impression.

A perfect plaster impression for a partial set may be obtained by first placing around the necks of the teeth a small portion of wax which will prevent the adherence of the plaster to the teeth, the wax will be removed with the plaster impression; and if the teeth have "drawn," the natural shape can be restored upon the plaster model. If a wax impression is desired, care should be exercised that a good article is obtained, as much of the white wax particularly is mixed with fats that make it useless for dental purposes. The yellow is more readily procured free from adulterations, and is in many cases preferable.

In introducing the impression cup care should be taken that it is securely and directly pressed into position, as indirect pressure will destroy any wax impression. The impression cup for the superior arch should be so formed that the finger may press the wax into the spaces between the teeth and against the palatine processes. The wax should also be pressed firmly with the finger into the inequalities of the arch directly in the median line.

I will now proceed to speak of Plaster of Paris or sulphate of lime as a material for taking impressions, which will, if properly manipulated, produce better results than can be obtained with any other agent, though all may under some circumstances be exceedingly useful. I will first speak of obtaining an impression of the superior arch. Upon determining to take a plaster impression, a cup should be selected that will nearly fit the arch, and will extend around the tuberosities of the maxilla. As remarked in the beginning, the mouth should be carefully examined, and if the soft parts covering the palatine or alveolar processes are soft or spongy, the plaster should be introduced thin and with great care. The soft parts covering the tuberosities will be found occasionally soft and movable, requiring the greatest care to obtain a perfect result.

The plaster of Paris and water with a small portion of salt (to hasten its hardening) should be mixed thoroughly in a glass or cup with a spatula, which should be poured into the impression cup, and quickly transferred to the mouth, care being taken that no particles fall upon the dress or face of the patient. The proper introduction of the cup is one requiring nice manipulation, and should be accomplished in the following manner.

The right side of the cup should be first introduced, pressing it well toward the right cheek; the left cheek should next be distended by the left index finger of the operator, which will allow the cup to pass readily into the mouth. Having introduced it, the right index finger should be placed in the centre of the cup, and a gradual upward pressure made, at the same time that a slight forward and backward motion is given to the cup.

If before its introduction hardening of the plaster has commenced, or there are bubbles of air between the plaster and the mucous membrane, the last named motions given to the cup will overcome these disadvantages. In obtaining plaster impressions, the head should be thrown slightly forward, that portions of plaster may not flow over the soft palate, and induce emesis. After the impression cup is in its right position in the mouth, and previous to the hardening of the plaster, the finger should be introduced between the cheek and the impression that no muscular folds may by their presence destroy the perfection of the impression.

The length of time necessary for it to remain in the mouth must be judged of by the quality of the material. Should the plaster have been previously subjected to heat, by means of which a portion of its water of crystalization has been driven off, it will harden very quickly. The ordinary plaster in use will usually set in four or five minutes.

In withdrawing the impression from the mouth after it has hardened the same care as in its introduction should be observed, that the soft parts may not be injured, and the impression unnecessarily broken. If in its removal it is unavoidably fractured, the pieces may be retained and replaced with but little trouble.

Lower impressions may be obtained as readily in plaster as with any other material, provided a few simple facts are remembered and acted upon. The plaster should be mixed somewhat thicker than for the superior arch, the same care being requisite in the introduction of the cup and the position of the head. Directions should also be given to elevate the tongue while the impression cup is being pressed into place, it should then be allowed to take its natural position in the mouth, this will prevent the retention in the impression of any loose folds of mucous membrane or muscular tissue of the tongue, or its attachments. The same care should be extended to free the muscles of the cheek.

The above instructions, if followed, will, in my judgment, give any operator what is most to be desired in forming artificial dentures, viz. —a perfect impression of the mouth.

For "The New York Dental Journal."

TAKING IMPRESSIONS.

By Dr. I. Payne, Bloomington, Illinois.

In the last number of the Journal, inducements are offered for the best essays on taking impressions, making dies, swaging plates, etc. The above, I understand to imply, such written directions as will enable the operator to produce the best results, in the shortest space of time. In other words, a plan by which the above work can be done with the least annoyance to the patient, and consuming the least amount of time of both patient and operator, and at the same time giving the best and most certain practical results. With this view of the subject, and with these short preliminaries, I will proceed to take my impression.

I am preparing now for a full set. I select an ordinary Britannia cup, of suitable size, and take the impression in the ordinary way, in wax. I oil my impression, and mix my plaster with warm water, to make it set as quick as possible, and make my cast. I have about five minutes, while my plaster is setting, to take the impression of the lower jaw. I select a suitable Britannia cup, having a hole in each side, and take this impression in wax, also.

A few words in regard to the mode of preparing the wax. I soften my wax in hot water, but am careful never to melt it. When thoroughly softened, I get rid of all the water, by pressing the wax in a piece of paper or a napkin, which will absorb the water. If this is not done, the wax will be found to consist of folds and layers, and, when taking the impression, these folds will come slightly apart, and cause defects in the impression.

My wax, when it is in the cup (which I always keep ready for taking the impression), is entirely free from water. When I want to take an impression, I place the cup thus filled with wax, in a bowl of hot water, heated sufficiently to make the wax very soft. In difficult cases, it is a good plan to press the cup and wax only part of the way down, then remove it from the mouth, and, with a warm knife, trim off the wax that has pressed over the edge of the cup; then soften the wax as before, place it again in the mouth, press it a little deeper, and the impression is perfect. In taking this impression, I stand somewhat in front of the patient, and press the cup uniformly down with the fingers of both hands—the head of the patient resting against the head rest—then, holding the cup firm in its place with one hand, I pass a small wooden probe into the hole on each side of the cup to let in the air, and, by holding the cheeks and lips out of the way to prevent bending the wax out of shape that may have spread over the edge of the cup, the second time I carefully remove it from the mouth. I oil my impression as before, and mix my plaster, in this case, with cold water, make my cast, and give it time to harden.

I make this cast not less than three inches thick, and sometimes more. I now return to my first cast, and, if it is a shape that is likely to cause any trouble in removing it, I place it in hot water and soften the wax; if not, I remove it without, varnish my cast, make a set of metallic dies, strike up a cup out of a piece of soft, thin copper plate —such as tinners use—and prepare for taking another impression of the upper jaw in plaster-of-paris.

As there may be some objections raised here on account of the time consumed in making dies and in making this cup, and as this is a part of taking the impression on my plan and, therefore, proper to be mentioned here, I will devote a few words in answer to any objections that may be urged on this point. As the dies and cup here referred to are not required to be very exact, as soon as my dies are barely hard enough to handle, I immerse them in cold water and cool them immediately. The whole time consumed in making dies and cup, is about ten minutes —the time required to make the cup, alone, not exceeding two minutes. The manner of making dies and swaging, will be described under their appropriate heads. Thus far, I have not been particular, except the impressions for the under jaw; but I am now entering on a part of my subject that will require the utmost care and perfect manipulation, and if I shall offer, as I go along, something entirely new, I will endeavor to sustain my theory by plain, substantial reasons. Some of the plans I am about to offer, I have communicated to all the dentists of my acquaintance for many years, but to what extent the matter has been brought before the profession, or how many have claimed them as their own, I am not apprised. I have, however, in some instances, heard of their having found their way into the dental conventions, where they were highly recommended by those who obtained the knowledge from me, and who gave it there as their mode of practice, forgetting to enter the proper credit. Having never attended the conventions, and this being my maiden article for a dental journal, I have permitted all who were thus disposed to make these appropriations in whatever way pleased them best.

It will be proper here, as I suppose the matter is open for discussion, to refer to some other plans for taking impressions, and state my objections to those plans. The object is to obtain correct information and expose error. One of the leading plans for taking the impression of the upper jaw is, to take an ordinary Britannia cup and build wax on the back end of the cup, projecting upward against the back part of the roof of the mouth, to form a sort of dam to prevent the plaster from flowing out into the mouth, then fill this cup full of plaster, and at the same time, cram a lot of plaster with the fingers up into the roof of the mouth, and then insert the cup. Before doing this, the cup is tried in the mouth after the wax is built on, to see that it is properly adjusted; then a large supply of towels and napkins are spread over the patient, to afford protection against the "impending crisis," and then filling the cup and roof of the mouth as above stated, the dentist is ready to commence the operation of choking and gagging. No wonder that delicate and sensitive ladies in bad health complain of having suffered worse than martyrdom. To say nothing of the disgusting, annoying, and needless parts of this operation, there is no certainty of success guaranteed by such a course. The rim of wax at the back part of the cup is, of itself, sufficient to defeat the operation, for, being hard and unyielding—for it is cold wax—if it comes in contact with the back part of the roof of the mouth, that part being soft and unyielding, it will press it up out of its place and retain it there until the plaster sets, giving an impression of that part of the mouth while pressed out of shape. Another serious objection to this plan is the huge and awkward cup full of plaster, filling the mouth unnecessarily full, and distorting the features, the edges of the cup pressing the lips and cheeks out of shape, and drawing all the movable parts outward which, connecting with the movable portions of the mucous membrane lying along the outside of the alveolar ridge, are put upon the stretch, and are also drawn out of shape, and are held there till the plaster sets. When the impression is removed, the parts all resume their natural shape, and when the plate is tried in, it will be found that there is a space in many places between the edge of the plate and the gum, outside of the alveolar ridge, while the back end of the plate presses up too hard against the soft parts which, when the mouth is thrown suddenly wide open, will put these parts upon the stretch, and throw the plate down. If the work were finished without changing the back end of the plate, and worn in this way, it would produce so much irritation in a day or two, that it could not be endured, and, besides, the teeth would be constantly dropping down. To remedy these defects, the dentist tries his plate on his plaster cast, but finds nothing wrong. He has then to alter the shape of his cast, by cutting it away in front, and then hammer the plate back, and so on cut and try, till he gets it as near right as he can by such a course, or he may bend it back with the pliers, for it is all guess work, to say the best of it. The back end is also bent down with the pliers, and this is called a fit.

Nine such cases out of every ten, will never give satisfaction. The same objections, to a great extent, are true of wax impressions for the upper jaw, for, no matter how soft the wax be made, it is still harder than the soft movable parts of the mouth, and it will, therefore, most certainly press them out of shape. The rugae are pressed to one side, or, by the wax sliding back over the roof of the mouth, they are stretched and forced backward out of their place, and in many cases nearly obliterated.

Another plan is to take a wax impression, and trim off the edges, and then cool the wax and fill the impression with plaster, and take another impression in this way. This plan is entitled to more credit than either of the others, but still has the objections of the large Britannia cup. Every candid practical dentist must admit the truth of the objections urged against all of these plans. We want a plan for taking impressions that is entirely *free from uncertainty*, and every thing of an unpleasant nature—one that will convey to the mind of the patient no feelings of dread—one that will not disturb the softest and most delicate folds of the mucous membrane, but one that will copy with minute precision the most delicate lines and inequalities of the mucous surfaces. I now propose to describe such a plan —a plan that will do the work in the most perfect manner, and with unerring certainty and with great speed.

Having tried the copper cut above described in the mouth to be sure that it is right, and being satisfied with the dimensions, which should be about as much larger than the gold or platina plate as the thickness of the plaster when taking the impression, or about an eighth of an inch larger all around, I mix a quantity of plaster with cold water sufficient to take the impression.

I put the plaster into a common bowl, and pour the water into it. I neither weigh the one nor measure the other, as has been suggested by some eminent writers, but put in about such a quantity of plaster as I may need, and add about such a quantity of water as will be necessary to mix it. If I find by mixing a little that it is going to be too thick, I add a little more water; if too thin, I add a little more plaster. The proportions having been ascertained to be right (which may be adjusted in half a minute), I reduce as soon as possible to a paste of the proper consistence. Very few dentists seem to understand properly how to mix plaster-of-paris, and in view of this fact I will take some trouble to explain it. Some lay a small quantity on the table, or on a board, or any thing that suits their convenience, and pour on the water and mix with a stick, or any thing that will do to stir it. Others put the plaster in a glass tumbler, and stir with a small wire; while I have actually known those who put the plaster in the palm of the hand, and stirred it with the finger. Success could not reasonably be expected to attend such modes of practice. Plaster-of-paris should never be stirred. It should be mixed on the plan of *beating eggs.* I mix the plaster in a common bowl, because it affords the best opportunity of beating it. I use for this purpose a common medium size spatula, turning the plaster in different ways two or three times to permit the water to flow through it till it all gets wet, when I commence beating, which I continue to do for about half a minute, when the plaster will be reduced to a thin delicate paste. It should be of a consistence first sufficient to pour out of the bowl with difficulty, and should run out in a broken stream, but should not all run out. If it is too stiff to pour out of the bowl, it will require too much pressure to take a correct impression of all the delicate inequalities of the mucous membrane.

If it pours out of the bowl with ease in one continuous unbroken stream, and all runs out, it is too thin, and will run out of the cup into the mouth. If properly conducted, there is nothing connected with the operation of taking an impression in this way that need disturb the equilibrium of the most fastidious belle, and she will require no protection from towels and napkins, for she will not be touched by a particle of plaster as big as a mustard seed. I never use salt or warm water for this operation, unless my plaster is of a very bad quality, as it causes it to set before I can beat it sufficiently, and I do not think it makes as fine paste, and moreover, by causing it to set so quick, I am of the opinion that the changes that [the plaster undergoes by expanding and contracting are increased. I prefer, therefore, to mix with cold water (soft water is best), which will allow it to set more gradually, giving it five, ten or even fifteen minutes, according to the quality of the plaster, though it seldom requires more than five minutes. Having reduced my paste or batter to the proper consistence, I fill my copper cup, and then partly pour and partly scrape out with my spatula a large portion from that part intended to take the impression of the alveolar ridge, being careful to leave plenty on the most prominent part of the cup, or that part which is to take the impression of the roof of the mouth, and also build it or spread it up with the spatula along the edges of the cup. Having arranged these preliminaries, I place the cup in the mouth, and while pressing it upward, I give it a slight twisting motion, or slide it a little backward and forward, in order to displace any air that may be confined, and at the same time cause the plaster to spread evenly over the entire parts of the gum. The sliding and twisting motion should not be more than an eighth or a quarter of an inch. When nearly to its stopping place, I cease the sliding or twisting motion, and press it steadily with the fingers of one hand in a perpendicular direction upward with the greatest care, till I am satisfied the cup is in its place, being very careful not to tilt the cup at this state of the process, to avoid which it is best to finish the pressure with the ball of the forefinger held against the centre of the cup, and at the same time raising the lips sufficiently with the fingers of the other hand to see that all is going on right. When the cup is properly adjusted, and the plaster has flown slightly over the edge all around, I carefully pull the lips down in a natural and *easy* position, and request the patient to relax the lips and cheeks, and not to make any effort to draw them in any direction which they are liable to do in order, as they suppose, of rendering assistance. I continue to hold the cup to its place by making the pressure with the ball of the finger till the plaster begins to set, the head being supported either by the head rest, or by my left hand.

I never take my finger from the cup, nor permit the patient to close the mouth sufficient to get the tongue to the plate or impression, for the following reason :

If the tongue is permitted to come in contact with the impression or cup, with many persons it will be liable to produce a tickling sensation, and cause the impression to be spoilt. I have known several persons who had much difficulty in becoming accustomed to artificial teeth, in consequence of this tickling sensation produced whenever the tongue came in contact with the back teeth. One lady in particular I will mention with whom I had much trouble on this account. The first attempt I made to take the wax impression was a failure, for not understanding this peculiarity in her case. I had hardly began to take the impression, when she jerked it out of her mouth and out of my hand, at the same instant, in double quick time, and it was found on the floor. The next time I was quick enough for her. I directed her to open her mouth as wide as possible, and then introducing the cup and keeping my fingers between the cup and her tongue, I succeeded, though it required quick work, for as I felt her tongue touch my fingers, I saw the tears start in her eyes, and then she gagged, and the impression had to come out whether it had been ready or not.

I succeeded in taking the impression of her mouth in plaster with the copper cup the first trial, and I kept it there about five minutes, but I first gave her directions to keep her tongue perfectly still and her mouth wide open.

When this lady's teeth were completed, and although with this difficulty in view, to obviate which the plate was cut out as much as possible over the roof of the mouth, and in every way made as delicate and short as possible, she could not retain them in her mouth one minute at a time. Notwithstanding this, I could hold her teeth in her mouth by keeping her mouth wide open, and by directing her to keep her tongue still for several minutes at a time. It then occurred to me that, perhaps on the same principle, if she would keep her teeth clenched and keep her tongue perfectly still, that she might succeed. I accordingly advised her to try the experiment, and not to speak a word.

She did so, and succeeded until she moved her tongue, when the tears instantly started in her eyes, and then she gagged, and out came the teeth. She continued to persevere in this way till she could retain them in for an hour at a time, or till some one spoke to her, and if she attempted to answer she was sure to gag, and then jerk out the teeth. I have known her to go a whole day at a time without speaking a word only at meal times, when the teeth were out, gradually improving by keeping her teeth upper and lower clenched, until several months had elapsed when she finally accomplished her object. The teeth have now been worn by her for more than five years, and give perfect satisfaction, and she can eat with them as well as any one can on artificial teeth. I mention this case as a very peculiar one, and although I have somewhat digressed in relating it, yet it seems to be somewhat connected with the subject of taking impressions, and if I had not observed the directions which I have laid down in this article, I could not have obtained the impression of her mouth. I will now return to my subject, having left off with the impression in the mouth, waiting for the plaster to harden.

As soon as the plaster begins to set, I carefully introduce a small wooden probe into a hole made for the purpose in the cup about the centre, and pass it through the plaster till it touches the roof of the mouth, when it is withdrawn and laid aside. The wooden probes that I use are made of hickory, and after being cut down to the shape desired, having one end larger than the other, for convenience in handling, and the small end reduced to about the size of a large knitting needle, I place the small end in hot water for a few seconds, and then bend it into the desired shape, and when cold it will always retain this shape. I have three of these probes—one for the lower jaw, bent in a suitable shape, to be used conveniently for that jaw, and the others, properly bent, for the upper jaw. One probe for the upper jaw is much smaller than the other, and has the small end covered with a little cotton or any soft substance, to prevent hurting the mouth. I never use a metallic instrument for this purpose, as it is more apt to cause slight irritation.

These probes are very simple and very useful, and any one can make them in a few minutes. When the plaster has sufficiently set (and it need not be very hard), which may be ascertained by trying what is left in the bowl, or by touching it where it has flowed over the edge of the cup in front, with an instrument, the small wooden probe having the cotton wound around the end, is carefully introduced into the opening made by the other probe, and pressed up against the roof of the mouth with just sufficient force to press that part slightly up from the impression. The use of this little probe will readily suggest to any one the mode of making it and wrapping the end with some soft substance. The pressure made by it against the roof of the mouth, will not produce any inconvenience to the patient, if the probe is made and wound right. The air will immediately pass in and spread over the entire roof of the mouth, and by a very slight pressure in different directions from before backward and from one side to the other alternately, the cup and impression will be detached and drop down on the fingers held there to receive it. If, by accident, any of the impression should be broken off, the pieces should be taken from the mouth carefully and properly adjusted, and no harm is done. Force should never be resorted to in removing the impression from the mouth, for two reasons: 1st, it is unpleasant to the patient, and, 2d, it is liable to break the impression. Much has been said by all writers on this subject in regard to the position of the patient, but I believe all agree that the head should be inclined forward while taking the impression of the upper jaw. I seldom do this, however, only when in the act of removing the impression from the mouth, at which time some of the plaster that has flowed over the edge of the cup may break off, and the head being inclined forward will prevent these particles from falling into the throat.

But the safest plan for those attempting for the first two or three times to take impressions in this way, is to incline the head forward until by a little experience they learn how much plaster should be used. If too much has been used, it will flow over the edge of the cup, into the mouth; if too little has been used, there will be defects in the impression. All these things must be learned by experience. After the impression is removed from the mouth, I cut out all the delicate lines and depressions made by the angle of the mouth, with a small instrument made for the purpose, so shaped at the point that the general shape of these depressions will be retained. If the case is intended for a metallic plate, I increase the depth of these depressions to about double their natural size; if for vulcanite, they need not be so deep. The reason is obvious: in swaging the metallic plates, these delicate inequalities are liable to be a good deal diminished by the battering down of the corresponding eminences on the metallic dies, but in the rubber work no such difficulty is encountered. The median line should also be increased in depth in the same proportion, gradually diminishing toward the back end of the plate.

Or the same object may be accomplished by elevating all these lines and points after the plaster cast is made, by means of whiting mixed with water and applied with a camel-hair pencil.

When the impression is completed, I give it a light coat of varnish, and as soon as dry, which will require about one minute, I apply a very light coat of sweet oil. The object of the varnish is to prevent the plaster from absorbing the oil. If too much oil is used, it may injure the cast, for when the plaster is poured into the impression, and flowing around, it pushes the surplus oil before it in little waves, and whenever one of these little waves encounters any obstacle, such as an elevated line, the oil is dammed up, and the plaster flows over it, and there will be a defect in the cast. This defect will consist of a depression, and there will finally be a corresponding elevation on the plate, which will cause it to press too hard at that point on the mouth. A few such defects will be a constant source of keeping the plate loose, and although perfect in every other respect, this will prevent them from ever giving satisfaction to the patient, and yet the most critical examination of the most skillful dentist will never be able to detect the trouble.

One word more in regard to my copper cups. Any other metal that can be swaged will answer the same purpose, but I prefer this one on account of the softness and the ease with which it can be swaged. After a large lot of these cups have accumulated, it is seldom necessary to make a new one. All that is necessary, is to make a plaster cast from the wax impression, and when it is quite hard, anneal one of these copper cups, and it can be readily adapted to the plaster cast; but, as every dentist should have two sets of dies, it can just as well be swaged, for it makes no difference whether he makes his dies to swage the copper cup, and then lays them aside to be used an hour afterward for swaging his plate; or in other words, it makes no difference whether he makes his dies at ten o'clock or eleven, for they are required to swage the plate, and can be used for swaging the cup also.

In regard to partial sets, I will here say that for suction-plates, I go through the same process. I never take an impression in plaster, over the natural teeth; I cut out my cup so it will pass freely back of the teeth, and embrace fully the alveolar ridge where the teeth are gone. When the impression is ready to be removed from the mouth, carefully remove the plaster that has pressed out beyond the edge of the cup against the teeth, with some small suitable instrument, till it is clear of the teeth, and then carefully loosen it with an instrument, and take it out. Those who do not like to make dies for swaging the cup, may use, instead of the copper cup, a cup made of gutta percha, fitted to the plaster cast, which I now use almost exclusively while doing the rubber work where dies are not required. This gutta percha cup can be made in five minutes, and is the same that is afterward used to arrange the teeth on.

To give it the necessary strength, while it is on the plaster cast—I spread plaster of Paris over the roof of the mouth about half an inch thick in the roof, and running up a little on the alveolar ridge, and when hard enough to cut, trim it so as to make it as nice and delicate as possible, and it is as good as the copper cup. To prevent the plaster from coming off, several small points may be raised with a hot instrument on the gutta percha cup, though after I have pressed it to its place, I would just as soon it would come off as not, as the impression may be taken out of the mouth without any such protection. When the plaster poured on to strengthen the cup has commenced to set, pass a suitable instrument through to the roof of the mouth, and make a hole to the gutta percha cup. When the plaster has sufficiently set, heat an instrument sufficiently hot, and pass it into this hole through the gutta percha cup, and you have the hole for the wooden probe.

By following the above directions, a thousand impressions may be taken without failing in a single instance. The whole time consumed in taking the wax impression, making dies, and swaging cup, or making gutta percha cup, and taking the final plaster impression in ordinary cases will not exceed thirty minutes.

But, of course, system and arrangement are necessary, a description of which does not belong to this subject. Much has been said and written on the subject of taking lower impressions in plaster of Paris. All I have to offer on this point is that such a plan is nonsense in the extreme.

Plaster impressions of the lower jaw should never be taken. In removing my cast of the lower jaw from the wax, I soften the wax in hot water, and then varnish the cast, and it is ready for use.

In entering thus fully in all the minute details of this subject, my communication is necessarily long, but I could not be more brief, and do justice in describing this first step in laying the foundation of this important piece of mechanism ; for if this commencement is wrong, the structure can never be made right.

TAKING IMPRESSIONS.

By C. M. Forbes, St. Louis, Mo.

A correct impression of the mouth depends, in a great measure, upon a careful attention to the details of the operation. It is necessary to be elaborate, overlooking no part of the operation because it seems to be unimportant. Every single detail bears a relative importance to the whole, and nothing can be omitted without affecting the end to be accomplished. It is requisite that the operator should possess a nicety of manipulation; and quite important that every article used should be clean and in order. Having ascertained the mouth to be in a proper condition for taking the impression, I first select a suitable impression cup (should prefer *silver*), which must conform, in size and shape, as near as possible to the shape of the arch. If there be peculiarities in the case, which render the ordinary cup unsuitable, I would take an impression in wax, get up metallic dies, and construct a cup out of sheet zinc, which would be perfectly adapted to the angular form of the arch. Having selected a cup, and arranged convenient for use such articles as will be needed—napkins, wax, plaster, lamp, etc.,—I heat the wax slowly over a spirit lamp, working it thoroughly with the fingers. The wax should be pure; and if remelted and worked it is better than new. When it is sufficiently soft I take a first impression of the mouth in wax. After this has become cool, I cut away the outer alveolar ridge, down to the edge of the cup; a part of the posterior portion is also cut away. Before taking the second impression, the patient should be seated in an upright position, with the head a little forward to prevent the plaster from getting into the throat; and a napkin should be spread upon the breast to prevent the patient's clothes from being soiled by the plaster or saliva that may drop from the mouth. I then prepare the plaster, which has been previously dried or boiled, mixing it in warm or tepid water, in which a little salt has been dissolved. It should be stirred a moment or two until thoroughly mixed. It is then poured into the wax impression, which is replaced in the mouth, and held firmly in its place until the plaster sets. This usually requires from three to seven minutes, depending somewhat upon the quality of the plaster. When some of the teeth remain in the mouth, and especially when there is an abnormal adsorption of the gums, leaving the necks of the teeth bare, the removal of a plaster impression from the mouth without injury to it, is often attended with considerable difficulty; but by exercising care and patience the operator will seldom fail to obtain a good impression; and even should it be broken, by preserving the pieces, it can in most cases be restored to its original perfection. After removing the impression, it should be permitted to harden a few moments, then oiled or varnished, and it is ready for use.

TO THE EDITORS OF THE DENTAL JOURNAL.

Messrs. Editors:—For eight or nine years I have taken the impression of the mouth with plaster-of-Paris; it matters not what number of teeth I wish to insert—one, two, three, or a full set. Where there is most difficulty in taking the impressions of the lower gum with plaster, I take the impression first with beeswax, then place a thin sheet of gutta percha immediately out of hot water on the wax impression; place it back in the mouth; hold it there one or two minutes, which is sufficient time for the percha to harden. This mode affords me a more perfect impression of the lower gum than any other way I have tried. I have not used bands or clasps to secure a plate with teeth in the mouth since 1855. I use suction or vacuum plate entirely for the upper gum; elegance of fit for the lower plate, assisted by its own specific gravity.

Seeing some notice in the Dental Journal of the expansion of plaster-of-Paris, has led me to give you some of my experience and observation in the use of plaster. Some eighteen or twenty months ago, when I was foolish enough to put up dental pieces on the cheoplastic base, my attention was called to the expansion of plaster in one particular instance, where I used plaster alone and left out the sand.

The consequence was, the plate was too large or too loose a fit; it would not do. Since that time I use very fine sand and plaster to take the impression, as well as to make the cast. Proceeding in this way, working the plate up accurately to the cast, a suction fit is certain in any kind of a mouth, whether the arch be flat or deep, I use just as much sand as it will bear, or that the plaster will sustain—one-half, two-thirds, and sometimes more.

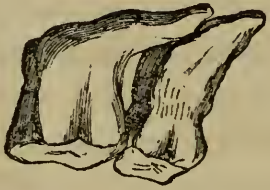
About one month ago, I put up a full upper set of teeth for a lady where the arch was very flat and the alveolar ridge quite broad. The plate held with such force that she was obliged to take them out at times. She came and asked me what she should do; I requested her to suck it up lightly, not to exhaust it so perfectly, which has overcome the difficulty. She now wears them with the utmost comfort and satisfaction.

I use heavy gold plate, adding ten cents silver to ten dollars gold.

J. B. McClure.

HOW TO REMOVE AMALGAM FILLINGS.

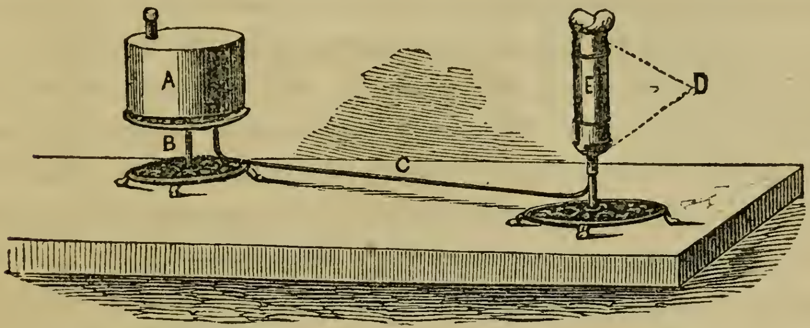
A short time ago I met Dr. E. Meader of Bermuda, formerly of New York. During our conversation we naturally came to speak of our profession, in the course of which he said to me that during his residence in Bermuda he was often called upon to remove Amalgam Fillings, and to replace them with gold ones. This operation is a tedious one, as it is well known to every dentist; therefore, he came to the idea that perhaps by applying some mercury to the surface of the filling, previously well cleaned, it would become reabsorbed, and would in a few minutes time soften the old amalgam. Having made a trial, he found it to answer his most sanguine expectations. He used it in the following way. He first made a little tube with wax to act as a conducting channel for the mercury, this being filled up with a little mercury, and the surface of the filling being well cleaned and scraped, he rubbed upon it a little diluted sulphuric acid, which would favor the amalgamation, then, when all is ready, he applied his tube filled with mercury to the surface of the filling. Having tried this, I have found it of inestimable value in removing these execrable remnants of a past age.



Further, during our conversation Dr. E. Meader presented me with two teeth, represented by the above engraving, which he had extracted from a negro woman in Bermuda. They present the appearance of exostosis upon nearly the entire surface of their roots. During the operation he had to make a tremendous effort upon the anterior tooth, which is the second molar of the right inferior maxilla, the other tooth is the dens sapientia, which was not included in the operation, being sound with the exception of its being exostosed like the previous named one. He said he pulled ! and pulled ! until a tremendous crack was heard, and instead of one tooth, two teeth came out, accompanied by the gums, and the alveolar process which was adherent to the exostosed portion of these roots. After having concluded this operation, he examined the two teeth which presented to his astonished vision the appearance of the following plaster impressions which were taken from the originals. It seems to me that after such a specimen of negro practice, dentists intending to practice south, would do well to take a course of drilling and of Zouave tactics.

L. D. Radzinsky, M.D.

PERSPECTIVE VIEW OF McKENNEY'S ALCOHOL LAMP FOR HEATING VULCANIZERS, AND FOR SOLDERING.



McKenney's Alcohol Lamp.

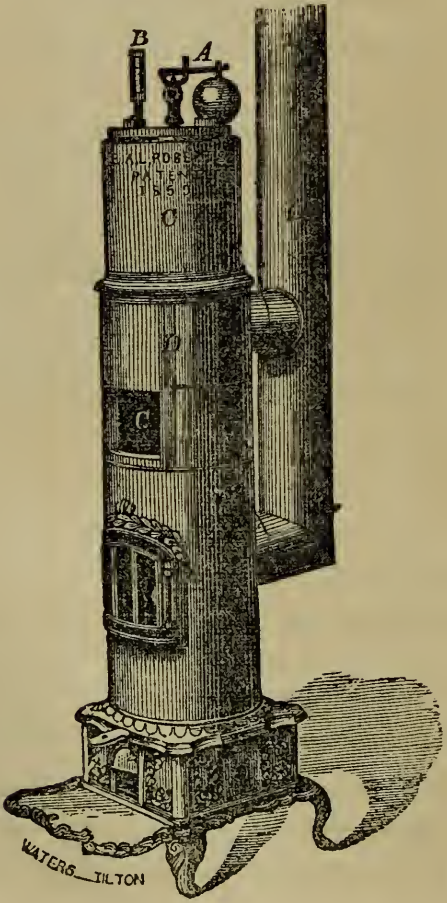
A, the reservoir for alcohol; B, stand; C, pipe, or tube, connecting the reservoir with D; the burner containing wick. E, slide on burner, to regulate the size of the flame (copper vulcanizers requiring a smaller flame than iron).

Among the advantages this lamp possesses may be enumerated—1st, the impossibility of an explosion; 2d, the reservoir being higher than the *bottom* of the burner, keeps the wick supplied with alcohol; it, therefore, needs no regulating faucet; 3d, whilst the top of the burner being higher than the *reservoir*, there is no danger of the alcohol overflowing.

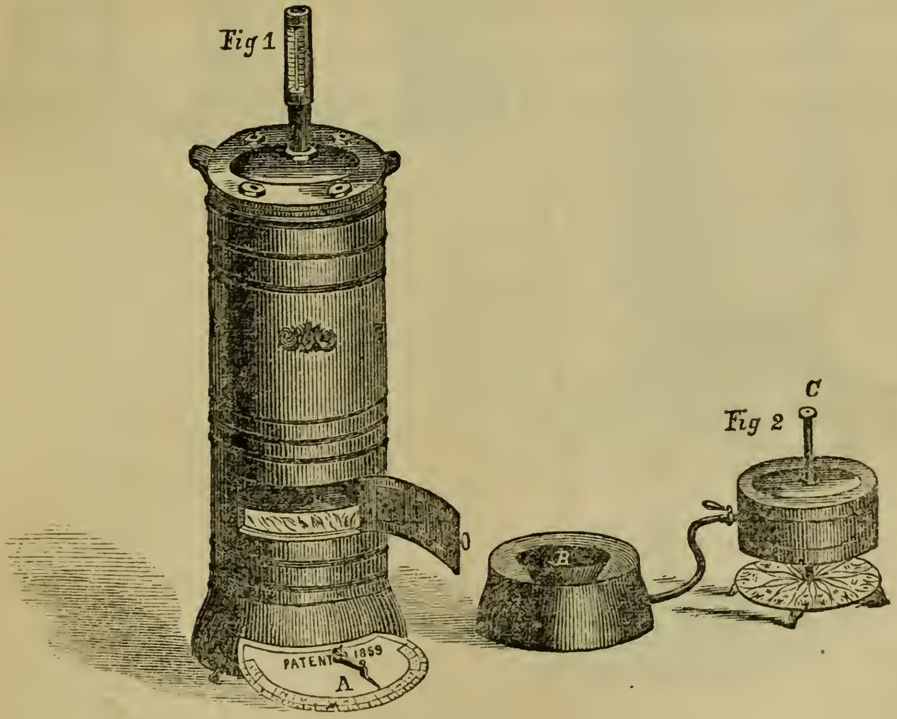
To use it as a soldering lamp, the burner should be bent to an angle of about 45 degrees.

IMPROVEMENT IN VULCANIZING MACHINES.

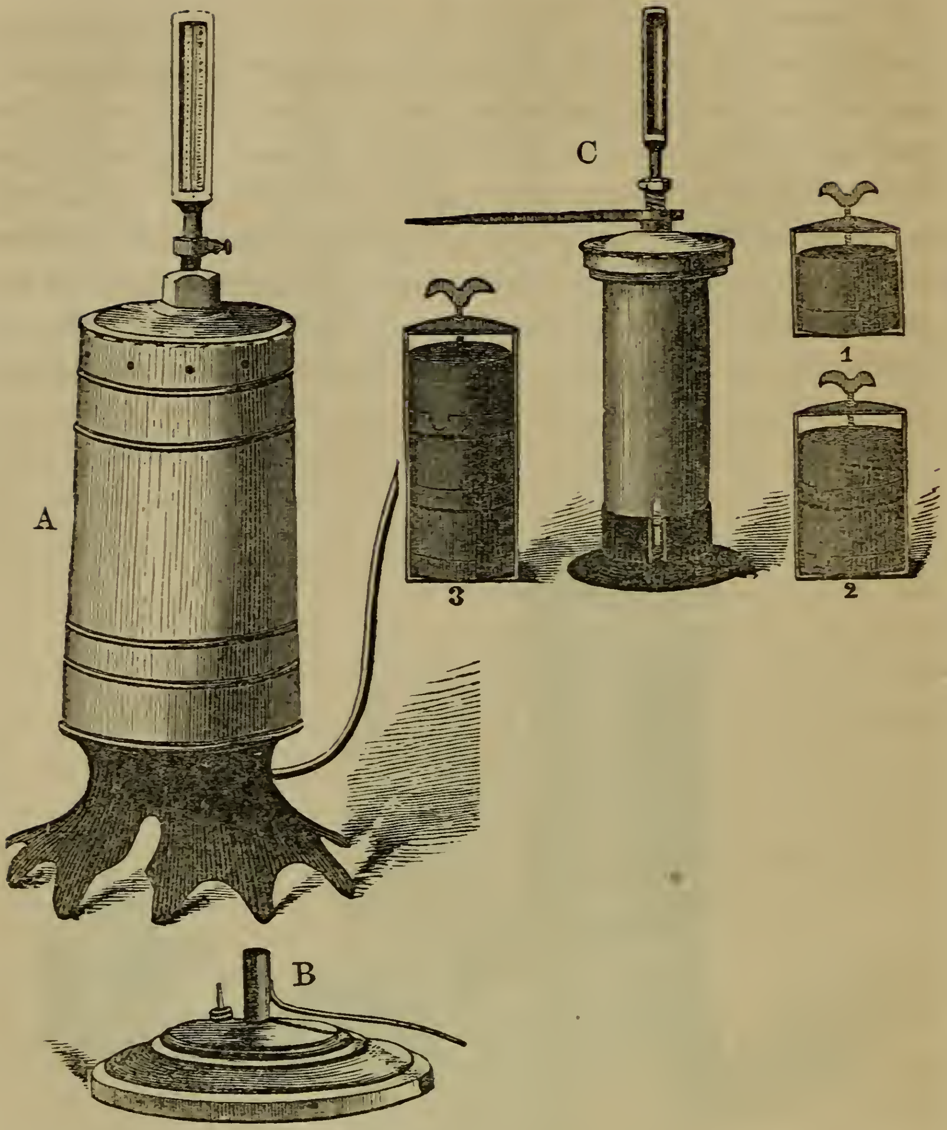
Within a few years past, progress appears to have been the watchword of every trade and profession; every member of the Yankee Doodle family appears to have been appointed a committee of the whole upon the state of improvements and new inventions. It seems but a few years since the introduction of steam, telegraphing, sewing machines, and many other important inventions and discoveries, yet the rapidity with which they have been cheapened, simplified, and rendered practical, substantial, and useful, can hardly be imagined by the community. In taking a retrospective view of the dental profession for the past few years, we can plainly see the same spirit of improvement manifested in all its members, and the result of such spirit in every department of the art. But three or four years have elapsed since the introduction of the first vulcanizing machine. This was introduced by C. S. Putnam, of Paris. It was constructed of a large boiler sufficiently large to drive a ten horse-power engine with water, pumps and safety-valve connected by a pipe of several feet with an iron steam-chamber, in which the pieces to be vulcanized were placed, requiring a practical engineer to use it. Roberts's machine simplified



this process by using a stove heater and a cast-iron chamber for receiving the water and piece to be vulcanized, separating them by two plates of iron, perforated with holes, allowing the steam to pass to the upper part of the chamber, thus having boiler and steam chamber all in one; this he patented in 1858. This machine is fully represented in the accompanying engraving. In a short time after this machine was made, he introduced an improvement, which consisted of a steam chamber and boiler the same as the first, using a small machine, and heating it with alcohol or gas as represented by the second engraving.



They were very handy machines, weighing less than 30lbs., and easily sent to any part of the country. There still being a demand by the profession of something more compact and light, especially for country and itinerant dentists, he made a third improvement—represented by the third engraving, which, for durability, practicability, compactness, and cheapness, cannot be excelled. The smallest size vulcanizing one piece; weighs but two lbs., and is only four and a half inches high, and



four inches in diameter. On pages four and eight of our advertisements will be found a full description of the improved machine.

W. B. ROBERTS.

ARTISTIC DENTISTRY.

We have upon many former occasions alluded to the great impo... ance of what we term *Artistic Dentistry;* by this term we mean the selection of teeth with a view to their size and color, according to the different cases we are called upon to treat; their proper arrangement in the mouth of the patient, giving to each tooth so arranged a life-like and natural appearance and expression; also the restoration of the whole contour of the face.

These are points which we consider out of the pale of mechanical and surgical dentistry; belonging rather to the artist than to the dentist.

And so we might divide and subdivide dentistry, until it would comprise nearly every branch of science and art; and the more we study, the more we are convinced of this being a fact; and therefore the necessity of each dentist being a sort of *compound* man, as Dr. Allen terms him in an article we published in our last number. In that article Dr. Allen has alluded to artistic dentistry in very appropriate terms, and we know of no one in the profession who has given more time and attention to the subject than he has; his method of attachments for restoring the face are invaluable in an artistic point of view; in the insertions of full dentures, his experience has been unequalled. We hope our readers will study the Dr's article with the attention and care it merits from the reading portion of the profession. With such articles, and the one we copy below, by Professor Calvert, we have no doubt but many of the better informed of the profession will be aroused to the importance of the subject. We also hope that our dental periodicals will take hold of it, and not pass it by as heretofore, as a matter of no importance.

Time will not permit us to go into a thorough review of Prof. Calvert's article; we, therefore, give it in full as it appeared in the *Dental Register of the West* for August last. As for ourselves, we have read but few articles with which we have been more pleased, as it fully corresponds with our own views, and with what we have long been endeavoring to impress upon the minds of dentists in all our writing and conversation upon the subject of dentistry. We have often thought that if it were possible to frighten dentists by their work, the ghastly misshapen features, fiendish and grotesque expression, and general distortion of the human face, consequent to their carelessness, would long ago have worked a great reform in our art; but years have rolled away with these things staring us in the face, and we look on as serenely as though no malpractice in artistic dentistry ever existed. Without the least disrespect to the dental profession, we would say (merely expressing our own opinion) that nearly two-thirds of the full dentures that are inserted, have a tendency to distort rather than improve the face. Can there be any thing more true than the fact apparent to every tasteful dentist—I mean of artistic taste—in stepping into a railroad car or other public conveyance, or in attending a private party, or place of public amusement, that in three out of four of all persons who are seen wearing artificial teeth, great defects can be discovered either in the arrangement of the teeth, their color, or the expression given to the features. We wish to send these facts home to every practitioner; not only those who are considered of least importance in the profession, but those who stand high in authority, for they quite as frequently overlook this important subject. When we have seen cases like these, and have contemplated such an arrangement of the teeth, some pointing one way, others another way, the canines flaring like tusks, giving the wearer more of the swine than human expression, we have wondered if the dentist who arranged them were superstitious, and if he were, would pity him, for his rest must nightly be broken by visions of spectres and hobgoblins, whose prominent features are sets of badly-made and illy-arranged teeth, making once beautiful faces hideous and frightful. We would not wish to be understood that it is always the fault of the dentist, for many persons will not permit the operator to do as he wishes in the arrangement of the teeth or the prominence to be given to the cheeks and lips; consequently the dentist must abandon the case, or submit to dictation by the patient. These things are wrong, and I see no remedy for them until the good time comes when we can see ourselves as others see us, enabling patients to view themselves from the stand-point of their dentist.

W. B. ROBERTS.

SELECTION AND ARRANGEMENT OF TEETH, IN CONSTRUCTING DENTAL SUBSTITUTES.

By Prof. W. Calvert, D. D. S.

It is a fact, doubtless self-evident to the mind of many in our profession, as well as out of it, that comparatively little regard is had by the mass of practicing dentists to the proper selection and arrangement of teeth.

Individual cases are not unfrequently met with, where teeth are inserted, and it may be in point of construction, so far at least as relates to skill in mechanism, faultless, and yet in no particular can they be said to hold a proper analogy to the supplies of nature, or are in that wonted harmony existing in other parts which combine to give character and expression, ever truthful to nature.

In the present age of progress in the arts and sciences, such should not be the case. The professional man who, in the management or treatment of his patients, fails to regard the governing laws of the economy, in securing and preserving the anatomical and physiological relations, is not counted worthy the name to which his profession would entitle him, but is justly reputed as empirical. And can it be considered any the less culpable on the part of the dental practitioner if *he* should ignore, by practice, the first principles of restorative science—a strict adherence to nature? As in the economy of nature, all her complex, systematic, and composite arrangements of parts harmonize, so, when invaded by disease, or intercepted by accident, so that the requisition of science and art become necessary, perfect conformity to nature should, as far as practicable, be alone the idea of laudable ambition.

Four points are here severally deserving of special notice, and should claim the attention and consideration of every practitioner, especially those just entering the profession.

No positive indications can here be given by which one may be, unmistakably, guided in the matters under consideration. The naturalist, from his accumulated store of scientific knowledge, is enabled to solve the anatomical problem of the unknown species, having but a single, or isolated bone; so the dentist, by careful study, close observation, and experience, should be able to adapt the color, size, and form of the teeth, by the relative analogy they hold to other parts, conformably with each particular age, temperament, etc.

The first thing, then, to be noticed, is the particular shade of teeth adapted to each case. This, doubtless, is by many considered of but minor importance, and is, therefore, often overlooked, or, at any rate, receives but little of the attention that it deserves or demands. That a distinguishable and even marked difference exists, not only in the color, but in the size and form of the natural teeth of persons of different ages and temperaments, no one will for a moment question; and it will be admitted, as well, that their color changes, from time to time, either from constitutional, or other causes, or from advancing age. By the preponderating forces in the human organism, the various temperaments are indicated. To the skin, and to the hair, are imparted their peculiar color; and, as by the mysterious processes of nature these are developed, so the teeth, in their normal or abnormal condition, receiving their supplies from the same nutrient source as other parts, under the same controlling influences, in like manner, present common characteristics, and are susceptible of like organic changes, either in the formative processes, or subsequently, after mature development. If, then, we have presented this variety of aspects in color, etc., of the natural organs, we are thus irresistibly led to the urgent necessity of special attention, with regard to a strict conformity to nature, in the insertion of dental substitutes. The inference, then, must be obvious, that we should insist upon the closest possible approximation to nature, first, where we have some of the natural teeth remaining in the mouth with which to compare, and by which to be guided, and, secondly, in suitably appropriating where all of the teeth are wanting—nothing but the individual, age, temperament, etc., to direct.

The size of the teeth is next worthy of note. In this, as well as in other respects, we find the same class of teeth differing, in different mouths. In many cases (partial ones) it is by no means difficult to determine upon the size of the teeth required, inasmuch as the position and space to be supplied will sufficiently indicate the same. But, in other cases, the difficulty is increased by the loss of most, if not all of the natural teeth. Here it is, especially, where proper knowledge and sound judgment combined, are the only safeguards to success.

The form, or shape of the teeth, also, and especially the front ones, has much to do in securing the most desirable results, as relates to the general and external appearance. Much of the character of a set of teeth depends, indeed, upon this particularly. It is certainly apparent to the mind of any one, that no single form, size, or color of teeth, is adapted to the general wants; and hence, the implied necessity for proper regard in this particular.

What has just been said, of course has no reference to the internal, palatal, or lingual shapes of the teeth, nor is it my intention to refer to this at present, further than to make this passing allusion.

More, perhaps, than any of the other points spoken of, self-considered, has the *arrangement* of the teeth, in their relation to each other, to do with the life-like expression and natural appearance of the mouth. Throughout, in the fitting and arrangement of the teeth upon plates for the mouth, a regular, uniformly set, or symmetrical order should, in all possible cases, be avoided; and, more especially, where nature has not implanted symmetry and beauty in the countenance, features and expression of the individual. Instead of maintaining a perfect order in their arrangement, it will be found, upon trial, that the less the adherence to the ideal of perfection in this respect, (setting one tooth a little high, another low, one out, and another in—in a word, *irregular*), the more pleasing and natural will be the effect in the mouth.

It is almost a universal custom, in the fitting and arrangement of teeth upon plates, to give all of the front ones—both upper and under—an inclination toward the median line, or symphisis. While this is generally in correspondence with nature, as relates to the *upper* teeth, it is not so in regard to the *under* ones. In them (the under) there should be a slight divergence each way from the centre,—at the same time setting them quite close together, rather than having the spaces usually separating the upper teeth.

From the variety of age presented, with the contrasted appearance existing in the natural teeth, from youth to middle age, or more advanced life, it becomes apparent that the same general character that is imparted to the denture in youth, is not at all adapted to or befitting the individual beyond the meridian of life. As life advances, instead of the teeth presenting the perfection and beauty of youth, we invariably find their cutting edges and cusps materially abraded, (some more and some less) from their constant attrition, in the fulfillment of their appropriate function.

Now, in the construction of cases, under circumstances so varied by age, there should ever be kept in view this important feature—adaptation to age. Should advanced life be the one involving claim, as the fitting of the teeth goes on, the external cutting edges of the lower, and the internal of the upper ones should be ground off, at such an angle or inclination as will present the abraded edges, or mechanical abrasion, so characteristic of age.

It is true that the case, with teeth treated thus, so much at variance with common custom, or the usual practice, when examined out of the mouth, may meet the well trained and critical eye unfavorably; yet, when seen, or carefully observed in the mouth, the effect, so produced, will be of the most marked and pleasing kind, greatly contributing to their life-like character.

Much in the expression of the individual countenance depends, also, upon the fullness that is given. In temporary cases, generally, great care is necessary not to overstep the natural limit, and obtain undue fullness, tension of the muscles, and consequent protrusion of the lips. So, likewise, where absorption has taken place, and the deficiency is to be supplied, due regard must be had to the proper contour of the face, so as to attain to the greatest possible natural perfection.

All this, relating as it does to the external, or outward and general appearance, should most unquestionably claim and receive its just share of attention. Still, aside from this, there is another office the teeth have to perform—other than that of an essential, superadded exterior —*that of more appropriate function.* While I would regard, with that attention I esteem due, appearances, in the construction of dental substitutes, I would not be understood, in any way, to divest the subject of its *more* important aspect, in relation to specific function, in which the teeth themselves, the lips, cheeks, and tongue are most intimately concerned—in *prehension*, *mastication*, enunciation, etc.

ANÆSTHETIC AGENCY.

[The following report upon "Anæsthetic Agency," we copy from the "Transactions of the Medical Society" of the State of New York, for the year 1860." As will be seen, this report gives the credit of the discovery to Dr. Horace Wells.—Ed. :]

Dr. Goodrich, from a special committee, read the following report:

The committee to whom was referred the resolution at the last annual meeting of the Society, to enquire into the subject of "Anæsthetic Agency, its origin, authorship, and its first introduction into medical and surgical practice in the United States," beg leave to report that they have given the subject the attention that its great importance demands, and herewith submit that the question to be considered is, "Who first proved by actual experiment that a chemical agent existed that would produce in the human system insensibility to pain, under severe surgical operations?" The question is not, "who has thought such an agent existed, or might exist;" not, "who suggested that this article or that article would, or might, produce such a result;" not "who, after knowing such insensibility could be produced, improved upon the agent first used to produce it," but "who first conceived that such an agent did exist, named it, tried an experiment with it, and by that experiment demonstrated that it did possess the power he ascribed to it." Whoever first did that was the first discoverer of Anæsthesia.

There are three persons, citizens of the United States, who have claimed to make this discovery. We will briefly set forth the claims of each, as made by themselves, in the order in which they first obtained general notoriety.

The first is Dr. Charles T. Jackson, of Boston, who first publicly claimed to have made this discovery, in a paper addressed to the Academy of Sciences, in Paris, and dated November 13, 1846, which society, on the strength of his claim, granted him a diploma.

The substance of Dr. Jackson's claim, as set forth by him at various times, is: That while at work in his laboratory, he suffered from the inhalation of noxious gases. That in the year 1842, he neutralized and destroyed their deleterious effects by inhaling the vapor of sulphuric ether, which operated as an antidote, and threw the system into a state of temporary insensibility, and that he afterward pursued the practice on himself and his pupils and others. He claims, that in the month of September, in the year 1846, he induced Dr. Morton, of Boston, to try an experiment in his dental practice, to test the conclusion he had previously come to from his own personal experience, to wit: That sulphuric ether was a substance that, when inhaled, would produce a sufficient degree of insensibility on the human system to allow of any surgical operation without pain. Dr. Jackson claims and Dr. Morton admits that such an experiment was first made on a patient of Dr. Morton's on the 30th day of September, 1846, and subsequently on the 16th day of October, in the same year, on another subject, before a number of medical gentlemen, and both were alike eminently successful.

Dr. Morton bases his claim to this discovery on the ground that he had long been in pursuit of an anæsthetic agent of this character, and that in the month of September, in the year 1846, he applied to Dr. Jackson for an apparatus to try an experiment in reference thereto; that at that time he held a conversation with Dr. Jackson upon the anæsthetic properties of several chemical agents, and that subsequently, on his own responsibility, and without consulting with Dr. Jackson, he tried the experiment with sulphuric ether on a patient, by extracting a tooth without pain, and from that time, namely,—on the 30th day of September, 1846, he claimed to have made the discovery in question. The experiment he claims to have been repeated before the Boston physicians successfully on the 16th day of October following. The dates in both cases agree with those named by Dr. Jackson. The experiments relied upon by both these gentlemen, in substantiation of their several claims, being in fact identical. It will be observed, as it is the most material fact in this examination, that the dates of these first experiments by these gentlemen are severally in September and October, 1846, and that no prior experiments on their part have ever been alleged to have been performed.

Such is a brief, but we believe full and fair exposition of the foundation upon which Doctors Jackson and Morton rest their claims to the authorship of the discovery of anæsthesia.

We now proceed to give, in as succinct a form as possible, an outline of the claims of Dr. Wells, of Hartford, Conn., or his representatives, to the same discovery.

On the evening of the 10th day ot December, 1844, Dr. Wells, with his wife, attended a lecture and exhibition of Mr. Colton, in the city of Hartford, illustrating the properties of nitrous oxyd or "laughing gas." One of the parties, a young man, who inhaled the gas at that exhibition, violently abraded the skin of his legs below the knee and produced a profuse flow of blood. Dr. Wells observed the circumstance, and seeing that the individual in question appeared not to notice it, made the inquiry of him if he did not feel that he was hurt, to which the person injured responded, that he had felt no sensation whatever from the wound. From this circumstance Dr. Wells at once imbibed the idea of the anæsthetic qualities of nitrous oxyd, and expressed his belief to his wife and others after the lecture was over. He further declared that he would at once test the truth of his conjecture. He counseled with Mr. Colton who told him that such an idea had never entered his (Colton's) mind, but that he would cheerfully afford to Dr. Wells his aid to test the soundness of the new theory. Accordingly, on the following day Dr. Wells had an experiment tried on his own person for this purpose. Agreeably to appointment, Mr. Colton went to the office of Dr. Riggs, a dentist of Hartford, and administered the gas to Dr. Wells. Dr. Riggs thereupon applied his instruments, and extracted from the jaw of Dr. Wells a large molar tooth. Dr. Wells very soon recovered his sensibility, and declared enthusiastically that it hurt him no more than the prick of a pin, and that the truth of his new theory was demonstrated.

He at once, frankly and without concealment, announced the result of his experiment, and the fame of his discovery spread through the neighborhood. He immediately introduced the use of the gas into his profession, and his example was followed by his brother dentists. It soon became generally known that Dr. Wells had discovered a method of extracting teeth without pain, and hundreds applied to test the new agency.

In January following, 1845, Dr. Wells visited Boston, where he announced his discovery to his brother dentists there, and others, especially to Dr. Morton, a member of the profession, and who had been formerly a pupil of Dr. Wells, and at one time a partner in business. Dr. Wells, after expounding his theory, proposed to demonstrate it by experiment, before a medical class. Accordingly that class assembled. At that meeting Dr. Jackson and Dr. Morton were both present. The experiment was tried, and failed, in part, and Dr. Wells was pronounced a charlatan. Instead of remaining, and trying another experiment, in defence of his theory, his sensitive nature shrunk from the ordeal, and he at once returned to Hartford. His intimate relations with Dr. Morton are shown in the fact that Morton stated that Dr. Wells left a portion of his apparatus and instruments, used on that occasion, in his (Morton's) possession. Subsequently, a communication was published in the Boston Medical Journal, setting forth the claims and experiments of Dr. Wells.

During all this time, and afterward, the practice of the Hartford dentists went on as before, in the free use of the nitrous oxyd gas, and was continued through that and the following year, and until the introduction of sulphuric ether and chloroform, in the latter part of 1846.

From the foregoing recital, in regard to the positions and relations the several gentlemen named, bear to the discovery of anæsthesia, we deduce the following hypothesis, which seems to us to afford a satisfactory solution of the whole case, and to distribute the merits of each of the claimants where they properly belong.

This plain state of facts, respecting Dr. Wells' claim to the discovery in question, vouched for, as it is, by the testimony of numerous unimpeachable witnesses, seems to admit no doubt of its truth. We assume, therefore, that his former pupil and partner, Dr. Morton, was fully aware of all his experience in the new art. That Dr. Wells' success, at home, was unequivocal, the testimony in the case fully proves. The partial failure of Dr. Wells, in Boston, or what seemed so, probably threw a shade of doubt over the mind of Morton, as to whether his friend had not been carried away by his well known enthusiasm, in his early experiments, made during the short period between his first discovery and his visit to Boston. It is natural to suppose this was so, and that Morton did not feel encouraged at once to follow up the experiment. But as time passed, and the Hartford dentists continued their use of the new agent, with well known success, through the years of 1845 and 1846, it is fair to conclude that Morton finally deemed it worth his while to revive the experiment in Boston. Doubtless, acting under the stimulus of his knowledge and his belief, in the month of September, 1846, he approached Dr. Jackson, a gentleman of well known scientific acquirements, to which sort of knowledge Morton made no pretensions, for some apparatus to be used in his profession. Just what it was does not appear. It is not unlikely it was for a trial of the nitrous oxyd over again. At this interview, both these parties acknowledged that the conversation turned upon the old topic, still ripe among the dentists, namely, "nitrous oxyd." It is certain that its equivalents were considered also, of which it was, and long had been, widely known, that sulphuric ether was one. If Morton did not know it, nothing was more natural than that Jackson should have mentioned the fact, as Jackson says he did, and also that he recommended it as an anæsthetic. It is likely that at that time, and in that place, that Jackson disclosed and emphasized the fact that the anæsthetic properties of sulphuric ether and nitrous oxyd were identical, or very similar, and that if the latter produced such a degree of insensibility as was claimed for it by Wells, that sulphuric ether would probably answer a better purpose, by its portability, and the greater ease of obtaining and using it. If Morton designed verifying any of his previous experiments, Jackson undoubtedly told him he had better try the ether in preference to the nitrous oxyd, which was cumbrous of application, and not easily obtained in a pure state. Immediately on Morton's success being established, both these gentlemen fell into a violent controversy, which has not ended to this day, in which they contradict each other in no mild form, and wherein they try hard to prove one another to be entirely destitute of all claims to the credit of the discovery of anæsthesia.

This hypothesis, thus delineated, may be sustained by a variety of facts and considerations, which we have not even hinted at in our recital, and which we have omitted, from a desire to bring the case within as small a compass as possible. It is based upon a full and impartial review of the voluminous statements, arguments, and testimony, elaborated into great detail by the parties to the controversy, in their several publications upon the topics under discussion. We can only say, that we believe, from this examination, that the hypothesis discloses the essential truth of the case. But whether this be true or not: whether the hypothesis be wholly true, or partially true, or even be dismissed altogether, certain facts exist, which, we conceive, fully and decisively settle the question at issue. These facts we will briefly record.

We begin, then, by asking: When did Dr. Wells make his discovery, and what discovery did he make?

First, as to time. Here, at least, there is no dispute whatever, between the parties, so far as experiments go. Whatever it was that Dr. Wells did, and whatever it was that he claimed, he did it, and he made his claim in December, 1844. This fact stands unchallenged. The experiments performed by Morton, on which he, and on which Jackson also rests his case, were not performed till September, 1846, almost two years afterward. As to what any parties may have *thought* or *conjectured* to be true, in reference to the subject, prior to their *experimental* demonstrations, may be properly dismissed from the case. Dr. Wells, it is attested, dealt in conjecture, or expressed belief on the subject, as early as 1840. Dr. Jackson's personal private use of his anæsthetic agent, for a medicinal purpose, or as an anodyne, he claims, was as early as 1841–'42. Neither of these claims, however, settle anything, nor can they do so, from their intrinsic insufficiency. As to the time then of the performance of the conclusive experiments on the one side, and on the other, we say there is no controversy.

What Dr. Wells *did*, he did twenty-two months in advance of Morton or Jackson.

What was it, we ask, then, secondly, that Dr. Wells established by his experiment, made on his own person, in December, 1844, and afterward, in hundreds of other instances, prior to Morton's experiments? He claims to have done two things. The first is, to have established the great fact, never before established, never before undertaken to be established by any man, namely, that the human system could be rendered through a process of inhalation of a certain chemical substance, insensible to pain, under severe surgical operations. The second thing he claims is, to have done this by means of nitrous oxyd gas.

The first branch of the claim is the main one. Did he demonstrate that the human system could be rendered thus insensible during such an operation? This question, the great question in the case, admits of an easy solution.

He himself attests the result of the first experiment made on his own person, by declaring it to have been a perfect success.

Upward of twenty other similar cases are in evidence, duly sworn to, in which this fact is fully and distinctly alleged.

In addition, there is the general statement of Dr. Wells, and other dentists of Hartford, that those twenty cases are but samples of a vast number of similar cases occurring constantly in their dental practice throughout the years 1845 and 1846, and until the introduction of ether and chloroform, at the close of the latter year. There is the further case of a lad of eighteen years of age, who had his leg amputated while under the influence of nitrous oxyd gas, in which it seems to be clearly established that the operation was equally successful as in the numerous cases of dental operations. The testimony is thus ample and overwhelming. It was then shown conclusively by Dr. Wells, through the years 1844 and 1845, that the human system could be rendered insensible to pain during the severest operations of the surgeon dentist, by an agent which he had detected and applied for this purpose. The evidence on this point puts to rest all doubt on the question.

We regard this fact as the turning point in the controversy. This is the central fact of all. It is the one whose demonstration eclipses every other in point of fundamental importance. This established, everything is established. The simple fact that harmless insensibility could be produced on the human system by a chemical agent, to the extent named, is the one great feature that gives consequence to the subject, and before which all others relative thereto, sink into comparative insignificance; because this fact established, everything follows. The whole field of science then becomes tributary.

If one chemical agent can do this, another, and another may.

And *experiment* is all that is requisite to evolve the best agents to accomplish the purpose.

The second, but less material fact, is, whether Dr. Wells did this by means of nitrous oxyd gas? The testimony on this head, too, is ample. It is not questioned by any body, that what Dr. Wells did by way of producing insensibility in his patients, he did with the nitrous oxyd.

Up to this point, then, as to the matters of fact discussed, we do not see that any question can be raised. Dr. Wells did make his discoveries and demonstrations nearly two years before Morton or Jackson made theirs, according to their own showing, and according to the undisputed assertions and admissions of all sides.

These facts thus established beyond controversy, and beyond denial, for we do not know that any one of them is denied, appear to us conclusively to settle the whole question before we approach any contested point.

Let us see if this be not true. Drs. Morton and Jackson only claim that they demonstrated, nearly two years after Dr. Wells' experiments and demonstrations, that the human system could be rendered insensible to pain by the use of sulphuric ether. They do not claim that they were either the first to make the experiment, or the first to demonstrate the fact that the human system was capable of being rendered perfectly insensible to surgical operations, by the use of an anæsthetic agent. At least this is true of Dr. Jackson.

Dr. Morton, on all occasions, exhibits great volubility, both in his denials and assertions. But for anybody to deny it in the face of the testimony collected in relation to Dr. Wells' operations, is futile. The undisputed and indisputable array of the accumulated facts of two years' experience, stand before us to confront and overwhelm any such pretension.

What then do they claim on this point? Why, nothing more than that their anæsthetic agent is a more satisfactory agent for use in surgical operations than that of Dr. Wells; and that they were the first to demonstrate *this* fact. This we understand to be the essence of their claim. In making it, they assume to set Dr. Wells on one side on the ground that his anæsthetic agent is not so good as theirs. Not that he did not make the first discovery of the fact that such an agent existed in nature; not that he did not apply it; not that he was unsuccessful.

Their assertion merely amounts to this, that Dr. Wells' experiments were not so satisfactory, or did not cover so wide a field as theirs, and never had so ready or so wide an adaptation as theirs; all of which we may admit to be true, without at all affecting the real merit of Dr.

Wells' claim, though we by no means make the admission. But we have no occasion to argue this question. It does not touch the vital point in the case. All we say is, that whether nitrous oxyd, or sulphuric ether, or some modification of the latter, be the better agent for the purpose in question, that the man who first discovered that the first named would produce the alleged effects, had need to have but slight scientific acquirements, or, indeed, he need have had acquaintance only with a wide-spread popular fact, to know that the effects of these agents were substantially identical on the human system. What result could be predicted of one, could, by the simplest and most legitimate induction be assumed of the other. Whoever knew that nitrous oxyd could produce utter insensibility to pain under the trying circumstances of severe dental, or any other kind of surgery, was the very next door to the information that sulphuric ether would do the same thing. Dr. Wells himself was fully aware of the fact, and was only deterred from the use of it by sensitive scruples in regard to its deleterious character. A slight touch of recklessness in his character, or his experiments, such as Dr. Jackson imputes to Dr. Morton, and he, too, would, at an early period after his first discovery of the virtues of nitrous oxyd, have been just as free in the use of it as Dr. Morton was two years afterward. It is quite possible that the first intimation Dr. Morton ever had in regard to the identity in effects, between the nitrous oxyd and the sulphuric ether, was derived from Dr. Wells, in some one of their interviews. It is in evidence, that Dr. Wells was dissuaded by several physicians from the use of the ether, more than eighteen months before Morton's first experiment. Under these circumstances, it would be a most extraordinary deduction that Dr. Wells' claims should be invalidated because he, from motives of delicacy or apprehension, declined to make use of the ether instead of the nitrous oxyd. And we may well ask how can it be possible to make a good claim to the merit of the whole discovery in question, on the ground that another and more reckless, or more skilful man, even, who did make use of it, after knowing the precedent facts, is entitled to that merit! A frailer and emptier pretension it is difficult to conceive.

Without entering into further detail, your committee close, by the recapitulation of the following positions:

First. Dr. Wells was the first man in this country, and so far as we know, in any other, who ever demonstrated, unequivocally, the fact that the human system could be rendered insensible to pain during surgical operations, by a process of inhalation. He succeeded in establishing this fact, almost two years before any experiment of the same kind was attempted by Morton or Jackson.

Second. This priority of experiment is not denied by either Jackson or Morton; but, on the contrary, it is acknowledged by both.

Third. The two preceding positions, which are at once undeniable, and are undenied, we contend, settle the whole question, and give the priority of discovery to Dr. Wells.

Fourth. The only claim of Drs. Jackson and Morton is, that they demonstrated by experiment, near two years after Dr. Wells' first experiments, that sulphuric ether produced the same effect claimed for Dr. Wells' experiments with nitrous oxyd; but with greater ease and efficacy.

Fifth. We contend, if their claim were fully made out, it would in no way invalidate Dr. Wells' claims as the original discoverer of anæsthesia.

Sixth. We show that Drs. Morton and Jackson were fully aware of Dr. Wells' claims and experiments, more than a year and a half before their first attempts to demonstrate the qualities of sulphuric ether as an anæsthetic agent.

Seventh. We assert that the fact is undisputed, that all scientific, most medical, and a large portion of all well informed persons, have long known that the effects of the sulphuric ether of Drs. Morton and Jackson, and the nitrous oxyd of Dr. Wells, upon the human system, are nearly or quite identical, and that Dr. Wells was fully aware of the fact.

Eighth. We conclude, from the two last propositions, that Drs. Morton and Jackson were led to their experiments from a knowledge of Wells' claims and demonstrations, and their knowledge of the similarity of effects referred to.

Ninth. We thus dismiss the claims of these two gentlemen, on the double ground that their experiments put forth no claim to priority over those of Dr. Wells; and second that they were plainly based upon those of Dr. Wells, and were substantially identical with his.

All of which is respectfully submitted.

Chas. S. Goodrich,
Frank H. Hamilton, } *Committee.*
Daniel T. Jones,

WESTERN DENTAL SOCIETY.

To the Editor of the NEW YORK DENTAL JOURNAL.

DEAR SIR:—I observed in the August number of the *American Dental Review*, in the report of the proceedings of the "Western Dental Society," a resolution offered by Dr. H. E. Peebles, commenting on the action of the "Michigan State Dental Society," in electing me to an honorary membership. On noticing this resolution, I prepared a communication, and forwarded it to the *Dental Register of the West*, embodying therein my views in the premises. This communication was rejected by the editor of the *Register*, on the ground that my connection with the N. Y. JOURNAL gave me an organ of my own, in which it would be more fitting such an article should appear. I shortly after disposed of my interest in the JOURNAL, and have since had no opportunity of recurring to the subject, until the present time. As I am desirous that what I consider an improper interference should not pass uncensured, I will take the liberty of stating, in as few words as possible, my position.

Admitting for the sake of the argument—although I do not by any means admit it in fact—that a society has the right to adjudicate in a personal controversy or conflict between two of its members, and to expel from its circle either of the parties at its own option—admitting this, I cannot conceive what bond there is existing among all the dental societies in this country, now established or hereafter to be formed, that may be considered sufficiently strong to prevent the expelled party from being entitled to admission into them.

If the Western Dental Society has in its constitution or by-laws a regulation taking such cognizance of private difficulties, very well; the members know what they have to expect, and can act accordingly. But by what right it presumes to make laws for other societies with which it has no connection, I cannot conceive. I was perfectly willing to submit to the action of the Western Dental Society, principally because, after such action had been taken as in my case, my pride would never have permitted me to join with them again. I consider, however, such a resolution as they have chosen to make, as an unwarrantable interference with a body in which they have no interest, and over which they possess no control. This resolution is entirely without parallel, and incapable of support by any argument they are able to frame, and seeing its complete impropriety as well as weakness, with these few remarks, I leave it to the oblivion itself and its author richly merit, and will undoubtedly receive.

GEO. H. PERINE.

EDITORIALS AND CLIPPINGS.

OBITUARY.

CHAPIN A. HARRIS.

The past few years, which will ever have a melancholy celebrity as a great *death period*, have proven especially fatal in the dental profession in America. While we, with the rest of the world, must mourn the loss of Irving, Prescott, Humboldt, Hallam, Macaulay, Peale, and Ritter, yet must we particularly bewail our own bereavements, in the death of L. S. Parmly, Townsend, Spooner, Blakesly, and Maguire. And now we have to add one more, and not the least, to this sad list. Chapin A. Harris was born in 1806, at Pompey, Onondaga county, N. Y., and as we go to press, a telegraphic dispatch to the public prints, announces his death as having occurred in Baltimore on the 29th of September. Prof. Harris graduated as a physician in 1830, but, after practicing medicine for a few years, he adopted the profession of dentistry. In 1840 he founded the Baltimore College of Dental Surgery, the first institution of the kind in the world. He continued its leading professor and lecturer for twenty years, or until the time of his death. But Prof. Harris became the most noted for his literary labors, and in the course of his life he produced works which have stood alone in this country, and have served to form the professional education of very many of our most prominent dentists. Prof. Harris' works have been published in the following order:

1. Dissertation on the diseases of the Maxillary Sinus, 8vo.; Philadelphia, 1842, pp. 160.
2. Characteristics of the Human Teeth, etc., 8vo.; Baltimore, 1841, pp. 119.
3. Dictionary of Dental Science, 8vo.; 1849, pp. 780. Second edition, entitled Dictionary of Medicine, Dental Surgery, and the Collateral Sciences, 8vo.; 1854, pp. 800.
4. Principles and Practice of Dental Surgery, 8vo.; Balt., 1839, pp. 384. Seventh edition, 8vo.; Phila., 1858, pp. 892.
5. Fox's Natural History and Diseases of the Human Teeth; edited with additions, imp. 8vo.; 1846, pp. 440. Second edition, 8vo.; Phila., 1855.
6. Desirabode, Complete Elements of the Science and Art of the Dentist. Translated from the French. 8vo, Balt., 1847, pp. 552.

Prof. Harris also translated several other works from the French language; he also edited the *American Journal of Dental Science* from its commencement in 1839, more than twenty years, being assisted at various times by Drs. Parmly, Brown, Maynard, Westcott, Dwinelle, Blandy, and A. Snowden Piggot. He also contributed to the *Maryland Journal of Medicine and Chirurgery*, *American Journal of Medical Science*, *New York Dental Recorder*, and one or two other literary publications. Prof. Harris' life may thus be characterized as one of constant, unceasing toil for the benefit of his profession. He has always been regarded as the father of American dentistry, and certainly, if unfaltering love, and care over a child, make a claim to the title, he richly deserved it. In private life, Prof. Harris was respected and regarded as highly as he was admired in his public career. His death took place after a long and severe illness, which he bore with unflinching fortitude, and was brought on by his constant, unremitting labor in the cause of his profession.

THE HARRIS TESTIMONIAL FUND.

Pursuant to call, a meeting of the Dentists of New York and vicinity took place at the rooms of Messrs. Jones & White (which were kindly offered for the occasion), on Monday evening, Oct. 8th, at 8 o'clock.

On motion of Dr. *John Allen*, Dr. Eleazar Parmly was called to the chair, and Dr. Solyman Brown appointed Secretary; when the Chairman proceeded to make the following remarks in reference to the sad occasion that had called them together.

"GENTLEMEN OF THE DENTAL PROFESSION:—I am glad to see so large a number brought together on this occasion, and, permit me, first, to thank you for the honor you have done me, and for your friendly consideration in selecting me to preside at this meeting. There is, perhaps, no one present who has had the same opportunity of knowing the deceased that I have had. My long acquaintance with Dr. Harris in the societies to which we belonged, and my more intimate connection with him in the Baltimore College of Dental Surgery, while I held the office of Provost in that institution, enable me to say, with truth, that I have never known a man of more generous impulses, or more genial feelings, than he whose death has awakened our sympathies, and brought so many of his professional brethren together to express their high respect for his professional character, their admiration of his attainments, and their exalted esteem for his moral, social, and personal worth.

As one to whom he was long known and endeared by the many virtues that adorned his character, I trust it will not be deemed unbecoming in me to give this testimony concerning one who has labored more arduously as a practitioner, more untiringly as a writer, and more devotedly as a teacher of the Principles and Practice of Dental Surgery, than any person who has in any way, or in any country, ever been connected with our professional art.

In his domestic relations, Dr. Harris was exceedingly happy. His home was one of the most hospitable and delightful that I have ever known. His house and his heart were always open to all those who approached him with the remotest claim upon his benevolence and bounty, with a widely extended philanthropy.

On motion, the Chair appointed a Committee of three to draft a series of resolutions expressive of the feelings of this meeting on the present occasion. Drs. Ambler, Brown and Foster were appointed.

While the Committee were absent, the Chair suggested that the gentlemen present should all sign the original call for the meeting, and remarked that there were already more names appended to it than there were dentists in the United States when he first commenced practice, in 1815.

The Committee returned and reported a Preamble and Resolutions. On motion, the report was accepted by the meeting, and the Committee dismissed.

On motion, the meeting proceeded to take up the resolutions *seriatim*, and Nos. 1, 2, 3, and 4 were adopted without dissent. Considerable debate followed the reading of the fifth resolution, and various suggestions and amendments were offeerd by different gentlemen present. The resolution amended by Dr. Rich, so as to change the number of the Committee from twenty to three, was finally adopted by the meeting. The other resolutions were then read and adopted, when on motion, the report as amended was adopted as a whole, as follows:—

PREAMBLE.

Every distinct profession in human society has its leading members, men of energy, talent and eminence. This is as true of the Dental profession as of any other, and not less true in America than in other quarters of the globe.

The names of Greenwood, Wooffendale, Gardette, Hayden, Flagg, Hudson, Koecker, and Randall, among others that have left their sublunary labors, are evidences of this fact.

It has become our melancholy duty, in pursuance of the objects of this meeting, to add another name to this catalogue more highly distinguished than any of his predecessors, for numerous and valuable contributions to the science and literature of his profession, as well by his writings as by personal inculcations as a teacher at the head of the oldest, and, for a long period, the only Dental College in the world.

Chapin A. Harris has gone to his rest. On Sunday, the 30th of the last month, he fell asleep, to awake in an endless Sabbath. His family, his profession, and his country are left to mourn his loss. We, therefore, offer to this meeting, composed of some of his professional brethren, the following

RESOLUTIONS.

Resolved, *First*, That, in the death of Dr. C. A. Harris, removed from his earthly labors in the prime of manhood; from his family in the fervor of affection; and from his country in the ardor of his usefulness; we recognize a sad bereavement, which the members of the Dental profession in all civilized lands have just occasion to deplore.

Resolved, *Second*, That the labors of Dr. Harris, in assisting to establish the American Journal of Dental Science, the American Society of Dental Surgeons, and the Baltimore College of Dental Surgery, as well as in the construction and publication of his Dictionary of Medicine and Dentistry, and his Principles and Practice of Dental Surgery, have conferred favors on his profession which gratitude can never repay, because these and other labors in the same direction, have broken his health, abridged his life, and gathered his friends and his family around his early grave.

Resolved, *Third*, That a committee of three be appointed by this meeting to convey to the family of the departed, the sympathy of its members, on occasion of their great and irreparable loss.

Resolved, *Fourth*, That, in view of the great and important services which the self-denying labors of Dr. Harris have rendered to the Dental profession, a suitable testimonial be presented to the family of the deceased, by such members of the profession as may choose to contribute to that object.

Resolved, *Fifth*, That a Committee of three be appointed by this meeting to invite all dentists to unite with us in subscribing to raise a money testimonial, to be presented to the widow of the late Dr. Harris, and that this Committee have power to appoint sub-Committees in Europe and America, to carry out the above object.

Resolved, *Sixth*, That the said Committee be instructed to give ample notice of the purpose above explained, not only in all the Dental Journals, but also by means of a printed circular forwarded by mail to all the dentists in the United States, appointing the time for the presentation of said testimonial to the family, and determining the manner in which the fund shall be appropriated to its object.

Resolved, *Seventh*, That the Committee hereby authorized to receive and appropriate the contributions made for the benefit of the "HARRIS TESTIMONIAL FUND," shall be instructed to use no part of said fund for any expenses except for printing and mailing the circulars and letters sent to members of the profession, editors of periodicals, and members of the Harris family.

Resolved, *Eighth*, That this meeting hereby requests all editors of Dental periodicals to publish the proceedings of this meeting, together with the circular issued by the Committee, free of charge.

SOLYMAN BROWN, JOHN G. AMBLER, J. H. FOSTER,	*Committee* *on* *Resolutions.*

On motion, the Committee of three mentioned in the fifth resolution, was appointed, consisting of Drs. Eleazar Parmly, Solyman Brown, and E. J. Dunning. On motion, a Committee was appointed to transmit the resolutions adopted by this meeting to the family of the deceased, Dr. Harris. The officers of the meeting, assisted by Dr. Foster, were appointed a Committee. A resolution of thanks was then voted to the officers of the meeting, and briefly responded to by the Chair, after which the meeting adjourned.

During the proceedings, Drs. Parmly, Rich, Allen, Hill, Gunning, Roberts, Clarke, Castle, Franklin, Burrows, and others, took occasion to express their sympathies with the occasion which had called them together, and their deep appreciation of the worth of the late Dr. Harris and his labors. The meeting was well attended, some fifty of the most prominent members of the profession in New York being present.

The earnest zeal manifested at this meeting, leaves no room to doubt that a hearty and liberal response will be made to the printed Circular of the Committee, which will be forwarded in a few days to all the dentists whose address can be obtained, in both hemispheres.

We say in advance to our readers, let the "HARRIS TESTIMONIAL FUND" be such as to fill with joy the heart of the widow and orphans.

At a meeting of the New York Society of Dental Surgeons, held on Wednesday, October 10, the following resolutions were presented by a committee, which had been appointed for that purpose:

Whereas, We have learned with the sincerest sorrow, that Professor Chapin A. Harris, of Baltimore, has been stricken down in the midst of his labors, and that the Dental Profession and the civilized world have thus been deprived by death of one of the most devoted and successful pioneers in the cause of science and humanity; and

Whereas, We cannot allow the death of this great and good man to pass, without endeavoring to give utterance to those feelings which should prevail in the hearts of all men, when one of the wisest and most useful of their counsellors are taken from their services forever; and

Whereas, This sad event has been suitably noticed elsewhere by the whole body of dentists of this city, and will undoubtedly be noticed by the profession throughout the whole country and Europe; therefore,

Resolved, That it only remains for us to say, that we will gladly cooperate with our brethren in any way which may be decided upon, to pay a proper tribute of respect and gratitude to the memory of the late highly distinguished Professor Chapin A. Harris, of Baltimore.

(Signed), A. McILROY, *Pres.*
E. C. RUSHMORE, *Sec.*

DEATH OF REMBRANDT PEALE, THE ARTIST.

WE are called upon to record the action of that fell destroyer, Death, in the demise of the veteran American painter, Rembrandt Peale, which event occurred on the morning of the 4th instant, at his residence in Philadelphia. Mr. Peale had already passed the allotted term of human life—three score years and ten—having reached his eighty-third year on the 22d day of February last. A few months ago he received a serious accident while in Connecticut, and was obliged to remain some time in Stonington, where, through the kind offices of friends, he recovered sufficiently to warrant his return home. He was taken ill on the 2d, and died as already stated.

Rembrandt Peale was born in Bucks county, Pennsylvania, on the anniversary of the birthday of Washington, February 22, 1788. He came of good stock. His father, Charles Wilson Peale, was not only one of the best patriots of the Revolution, but also a portrait painter of great excellence, and one of the fathers of art in America. A sketch of the life and labors of the son would be incomplete without a proper reference to the father, to whose love of art and eminence in his profession his son Rembrandt owes much of his success.

The "times that tried men's souls" were not congenial to the culture of art; war absorbed all energies that, in times of peace, might have been turned with success into the great channels of commerce, education, mechanics, and fine arts. The claims of country were paramount to all others. Hence we find the artist, the lawyer, the clergyman, the statesman, the farmer and the mechanic all in the ranks doing battle for that freedom which is now our blessed inheritance. Charles Wilson Peale, though giving extraordinary promise as an artist, did not shrink from his country's call, but girded on his armor, and followed the fortunes of Washington until victory gave the weary patriots rest. Mr. Peale was born at Chester, on the eastern shore of Maryland, April 16, 1741; thus being three years the junior of West and Copley. His genius was of a very versatile character, being, as his biographer says, "harness-maker, clock and watch-maker, silver-smith, painter in oil, crayon and miniature; moulded the glasses, and made the shagreen cases for the latter; was a soldier, legislator, lecturer, and preserver of animals, whose deficiencies he supplied by making glass eyes and artificial limbs; constructed for himself a violin and guitar; modelled in clay, wax, and plaster, and was the first dentist in this country who made sets of enamelled teeth." Not until he was twenty-six years of age did he turn his attention to oil painting. Encouraged by the material aid of several gentlemen of Annapolis, he was enabled to proceed to London, and pursued his studies in the Royal Academy during the years 1780–81, under the direct tuition of Benjamin West, who ever took much interest in his countrymen. Returning home, he pursued his profession (and the art of war) with great success, painting portraits of the great men of that great era, which are now regarded as almost priceless legacies of his countrymen. After the close of the war Mr. Peale painted assiduously in Philadelphia, and in 1795 commenced the great museum which bore his name. a branch of which occupied a building on Broadway, opposite the Park. The large collection of portraits now in Barnum's establishment was formed by this Mr. C. W. Peale. The building in Philadelphia, near the site of the Continental Hotel, was burned down several years since, and the principal contents of Peale's museum of this city were long ago transferred to Mr. Barnum. In 1791 he made the first effort ever made in America to found an academy of design, where native artists might study and have their productions placed on exhibition for the public good. Though his first attempt did not prove a success, the tireless worker again tried, and in 1809 succeeded so far in his plans as to see the establishment of the Philadelphia Academy of Fine Arts, and lived to see it become a noble monument to his memory. He contributed to seventeen exhibitions of the Academy, closing his extraordinary and useful life in 1827.

From association with such a father the son could but attain to eminence. Born when the parent was with Washington, enduring the sufferings of Valley Forge, Rembrandt's first years were passed under the care of his admirable mother. His artistic training was excellent, for he commenced drawing at an early age, and did not begin to paint until he was able to delineate anatomical figures with pen and ink, without pencilling. Too many artists of the present day rush into color before they have mastered form, so that the most finished productions offend the cultivated eye by defective drawing, which nothing can excuse. Young Peale's first essay in color was made when he was but thirteen, his first sitters being members of his family; at fifteen he commenced the portraiture of strangers. From his father he inherited great mechanical ingenuity, and it was not without an effort that he subjugated his mechanical tastes, and devoted himself exclusively to painting. He was also, from an early age, passionately fond of music, and acquired considerable proficiency as a performer on the flute and guitar; but he relinquished the former instrument because he found it was injuring health, and the latter because he took more delight in the finished performances of others than in his own efforts. In the autumn of 1795 Washington honored the young artist with three sittings of three hours each. In after years this study, aided by a faithful memory, and the portrait of the hero painted by the artist's father, enabled Mr. Peale to produce a magnificent head of the father of his country, which the relatives and friends of Washington pronounced a most extraordinary likeness. He repeatedly painted copies of this portrait, having made no fewer than sixty-nine of them. At eighteen years of age Rembrandt opened a studio in Charleston, S. C. He was married before he had attained the age of twenty-one.

At the time he commenced his career, artists labored under the difficulty of bad material, and these colors, purchased in a crude state, were ground and prepared by themselves. Moreover, little attention was paid to the chemical properties of the colors, and many fine paintings of the period are now sadly disfigured from the fact that they were painted in changeable or fleeting colors. Mr. Peale early appreciated this difficulty, and studied chemistry under Professor Woodhouse, in order to make himself acquainted with the chemical action of pigments in his art. We mention this fact to show how laboriously and conscientiously he strove to master the elements—the basis of his profession. He remained at Charleston, painting with success, until 1801, when he visited England, to study under West, at the Royal Academy, London. His studies were pursued with great ardor, and induced great changes in his style and coloring. At this time he published his "Memoirs of the Mammoth"—a little work which attracted the attention of Cuvier—and painted portraits of Sir Joseph Banks, and of Robert Bloomfield, the "peasant poet." So little was painting studied at this time, that Mr. Peale's only fellow pupil was Jeremiah Paul, the son of a Quaker schoolmaster. Returning to America, he practised his profession in Philadelphia. In 1807 he visited Paris, for study, and to paint eminent Frenchmen. He found sitters in many savants and military men, whose portraits were afterward a great centre of attraction in the museum of the elder Peale, in Philadelphia. Returning home, he remained in Philadelphia until 1809, when he again went to Paris, accompanied by his family. Here he remained for fifteen months, an ardent student of the great masterpieces in the public galleries, and zealously painting at his "Gallery of Eminent Frenchman" of the time. Then, and during a subsequent visit in 1811 and 1812, he painted a series of portraits of celebrated characters for the Philadelphia Museum; among them, Denon, Barthollet, Gay-Lussac, Humboldt, Cuvier, Bernadin de St. Pierre, the author of "Paul and Virginia," Charles Bonaparte, Dr. Gall, Guyton de Morveau, and others. He enjoyed frequent opportunities of seeing Napoleon the First, and made several spirited sketches of his face, which he afterward employed in producing his equestrian portrait of the emperor. Denon made him a brilliant offer to remain in Paris; but he declined, and returned to America. Industrious, and enjoying a high reputation, his pencil was constantly in demand; and we doubt whether he could recall the number of portraits he had painted. Among his distinguished sitters were John Adams, Jefferson, Jackson, and John Quincy Adams. But although of necessity he was much engaged in portraiture, he also successfully attempted the highest branch of art—historical painting and ideal composition. Among his most celebrated works are the Ascent of Elijah, the Roman Daughter, the Death of Virginia, and the Court of Death. This last picture, twenty-five feet by ten, was exhibited in this city some years since, and many of our readers will recall the grandeur of its conception and the splendor of its coloring. On Mr. Peale's return from Europe, he formed a gallery of paintings and museum of natural history in Baltimore. He remained in that city nine years, busy with sitters, and also finding time to paint the Ascent of Elijah, Court of Death, etc. The last named was exhibited throughout the Union, and with great success to the artist's fame and resources. It is on a canvass twenty-four by thirteen feet, and contains twenty-three full sized figures. It was suggested by

Bishop Porteus' poem on Death; and his account of it concludes with a sentence particularly impressive and appropriate in view of his own recent departure for the spirit world.

He was the first person to introduce the use of gas in America—Baltimore being first lighted by it. In 1801, he assisted his father in exhuming and putting together the skeleton of the mammoth, or mastodon, and published the first account of it in London, dedicating the work to Sir Joseph Banks. In 1827 he made the first attempt in America at lithography, obtaining the silver medal therefor from the Franklin Institute. Many of his lithographic drawings vie, in delicacy of touch and richness of effect, with the best produced in Europe. When in France Mr. Peale invented a mode of painting on wax, finishing a head of Dupont de Nemours in that style, which he presented, together with a memoir on the art, to the National Institute of France.

From 1822 to 1829, Mr. Peale painted portraits in Boston, New York and Philadelphia. In 1829, together with his son, he again visited France, extending his studies into Italy, remaining abroad sixteen months. His "Washington," which he exhibited at the Academy in Florence, and in other cities, attracted much attention. On his return home he published a volume on Italy and art, which proved a great success, and showed the author to be an acute critic, as well as shrewd observer. The portrait of Washington, after his return, was purchased by government, and now adorns the United States Senate Chamber. This portrait was his first study, improved by diligent and most careful scrutiny of all the busts and portraits of Washington which fell under his observation. It is regarded as one of the best and most life-like of all the busts or portraits of the "Father of his country" ever painted, and received the encomiums of Chief Justice Marshall, Judge Washington, Lawrence Lewis, and other personal friends and relatives of the great patriot.

In 1832 the subject of this notice again visited England. Previous to this time, as early as 1825, he had experimented successfully in the just discovered art of lithography, and took a medal from the Franklin

Institute, for his lithographic impressions. His trip to England was to introduce his improvements in the art to the British public.

In 1824 Mr. Peale opened a studio in New York, painting eminent subjects with much success. He also produced his work on the "Principles of Drawing," which contained much useful information.

Since that time, until his decease, Mr. Peale practised his profession in his old home in Philadelphia.

Mr. Peale, until a recent period, enjoyed excellent health; and, during the last year, executed for Joseph Harrison, Jr., of Philadelphia, the portrait of his venerable brother artist, Thomas Sully, which was recently on exhibition at the Academy of Fine Arts in this city. He possessed highly cultivated literary tastes, and in 1839 published a small volume called the "Portfolio of an Artist," which contains several well written poems from his own pen.

His lecture on the portraits of Washington, delivered in Philadelphia, and other cities, during last winter, attracted large and appreciative audiences.

He was twice married, and leaves a widow and numerous descendants.

On Tuesday evening last he showed some symptoms of indisposition; but it was only on Wednesday night that he was considered dangerously ill, and at about half-past six o'clock yesterday morning he died. His disease was dropsy of the heart.

Mr. Peale was of medium height, well-proportioned; and, from the account we have received, not at all bent by weight of years. His hair—his "plumes," as he playfully called his locks—were white and abundant; the expression of his face was exceedingly pleasant, and beamed with benignity and earnestness; and his mild, blue eyes were brilliant with the glow of feeling when speaking on the subject of art. His whole being seemed to glow with the enthusiasm of hopeful youth as he talked of it, its charms to the practitioner, the divinity of its origin and character, and its humanizing influence upon society.—*Editorial, N. Y. Herald.*

The following, from the pen of Rembrandt Peale, was received by us from a member of his family, and afterward published in the American Encyclopedia, in the article on Dentistry:

"My father, Charles W. Peale, at an early age losing his teeth, supplied himself with artificial ones made of ivory, as usual. But about the year 1807, reading in the newspapers some account of what was then called "mineral teeth," he employed himself in making many experiments to ascertain the best composition—procuring the finest Chinese clay, silex, and platina filings; constructed furnaces, muffles, etc.; moulded teeth and gums in wax; made casts in plaster and brass; beat the gold plates into form; made platina wire and gold springs; and finally furnished himself and some of his friends with the first porcelain teeth that were made in America. He furnished his son, Rembrandt Peale, with a set in 1806, and finally gave instruction of his methods to Mr. Barabins, a dentist of this city."—*New American Encyclopædia.*

PROF. JAMES HARLEY.

From the London Dental Review.

It is with extreme regret we announce the death of one of the most esteemed members of the Profession in this kingdom—Mr. James Harley, of Davies street, Berkeley square.

Mr. Harley was born of Scotch parents, at Gibraltar, in the year 1797, and was apprenticed to Mr. Law, dentist, of Edinburgh, about the year 1814. After the termination of his apprenticeship, he became the assistant of Mr. Thomas Hutchins, of Edinburgh, who subsequently recommended him to his brother, Mr. William Hutchins, of Hanover square, London, with whom he remained in the capacity of assistant during many years, until he entered into practice for himself. The kindly feeling which had ever existed between Mr. Hutchins and Mr. Harley continued to the last, as was evinced by the frequent allusion made by Mr. Harley, in his late illness, to his old friend and patron. In his political views, Mr. Harley was a consistent and firm supporter of the principles of independence and unity of the Dental profession. He was one of the earliest members of the College of Dentists, was for three years a member of Council, and nearly two years a vice-president. He was also a member of the Board of Examiners, and a large contributor of specimens, of considerable value, to the Museum. His attachment to the College was most sincere and unaffected. At the distribution of the prizes of the Metropolitan School of Dental Science, he rose from a sick-bed to be present; it was his last attendance: nevertheless, he retained his recollections of his colleagues, and one of his latest wishes was, that a simple recognition of his position as an officer of the College of Dentists, of England, should be inscribed over his grave.

For some time previous to his death, Mr. Harley had returned to his residence at Finchley, where he died on the 22d of August, at the age of sixty-three years.

In Mr. Harley, the profession has lost one of those simple-minded, single-minded men, upon whom, after all, everything that is good in this world rests. Too modest to enter into political intrigue, too independent to be drawn from a principle he believed to be right, and too active to be careless in the question of professional welfare, he presents a biographical figure which abler men may envy, and friends may remember with an affection as lasting as their own careers.

From the London Dental Review.

SOCIETY OF GERMAN DENTISTS.

In accordance with a resolution adopted last year, the second Annual meeting of the Society of German Dentists will be held at Berlin, on the 6th, 7th, and 8th of the present month.

The following is the order of proceedings:

1. Address of the President.
2. Report of Committee, and Financial Report.
3. Election of two new Members of Committee.
4. Resolution respecting the form of Diplomas for Ordinary, Corresponding, and Honorary Members of the Society.

5. Discussion on the Vulcanite Process.

6. Lectures on subjects connected with Dental Science.

7. Discussion on the following questions, which have been proposed for consideration :

(*a*) Have any advantages been obtained in Germany by the Cheoplastic Method, and what?

(*b*) Which is the best Cement for stopping teeth recommended during the last few years?

(*c*) Do we obtain as favorable results with the filling-material known under the name of Crystal Gold, as with the Leaf Gold; and what differences have been observed in the various preparations, according as they have been manufactured either in America, England, France, or Germany?

8. Debates upon the best means of preventing Charlatanism, or unqualified Dentists from encroaching upon the rights of the Profession.

9. To determine the time and place of the next meeting of the Association.

According to a resolution of the Society, new Members are received under the authority of the Committee only till the next Annual Meeting. The Committee beg, therefore, to invite their professional brethren, who are willing to assist in advancing the objects of the Society, to send in their names. All German Dentists of known respectability, who have passed their State examinations, or other qualified Medical Practitioners practising Dentistry, can be admitted members of the Society.

All letters concerning the affairs of the society to be addressed to the Secretary—MR. SCHMEDECKE, Court-Dentist, Berlin.

By Order of the Committee.

G. H. OENICKE, Vice-President, Court-Dentist to the Duke of Anhalt-Dessau, Practising Dentist at Berlin, and Commissioner of Examination at the Medical College of the Province of Bradensburg,

CONTRACTION OF ZINC.

By T. L. Buckingham, D. D. S.

I suppose all who have inserted artificial teeth will admit that one of the most difficult operations in dentistry is to make plates that will fit the mouth perfectly.

In order to make plates the exact size and shape we require them, we should have our metallic dies perfect models of the mouth; if they are smaller, the plates will unavoidably be smaller than they should be.

Now, unfortunately for us, the metal we use, more than any other, for making dies contracts very much in casting (I allude to zinc), and we know no other metal that answers our purpose as well. We have some alloys that answer tolerably well; but there are objections to alloys that cannot be urged against a simple metal.

I have recently been trying some experiments in casting zinc. There is but one important fact which I wish to point out at present, and that is the amount of contraction that takes place. As far as I know, this has never been determined; and as it is a matter of very great importance to those who insert teeth, I think we should know, as near as it is possible to know, the amount of the contraction, so that we may take some means to remedy the effect of it.

According to my experiments, a bar of zinc, five inches in length, contracts in casting $\frac{1}{18}$ of an inch, or the $\frac{1}{90}$ of its length. This is a little more than is usually allowed in zinc castings. I have been informed by a person who casts large quantities of zinc for various purposes, that he has his patterns made $\frac{1}{8}$ of an inch to the foot larger than he wants his castings to be. This is allowing less for the contraction than I have made it, being only the $\frac{1}{96}$ of the length.

In estimating the contraction I do not take into consideration the settling in the centre on top of the cast, which we see when the casting is made in an open mould, as we usually make them, but the contraction that takes place on the surface that is intended to be used.

Now, allowing an ordinary sized cast to be two inches across and two and a half inches in length on the surface where the plate is to be made, we have a contraction of the $\frac{1}{45}$ of an inch across and the $\frac{1}{36}$ of an inch in length; but we must bear in mind that the cast is not this much smaller than the mouth, for we have had an expansion in the plaster cast of $\frac{1}{4}$ of this amount. Zinc contracts four times as much as plaster expands.

The contraction in the zinc cast, in some cases, does very little injury, and perhaps it would be better to have the plate a very little smaller than the mouth, when it is flat and soft, or spongy; but in cases where the alveolar ridge is prominent and hard, or has knotty projections upon it that are hard and the other parts are soft, we want plates just the exact size and shape. If any allowance is made, they should be large enough on the hard parts, or smaller on the soft; but in making plates the reverse of this takes place, for the most prominent parts on the casts are driven down most in swaging.—*Dental Cosmos.*

REPORT OF COMMITTEE ON PRIZE ESSAYS.

To Dr. John Allen, *Chairman of Committee on Prize Essays for Mechanical Dentistry.*

Dear sir—I herewith send you the essays received, competing for the prizes offered in the N. Y. Dental Journal for July last; the subject written upon in these essays is *taking impressions*, and the essays are numbered 1, 2, 3, etc., with the names of their authors detached.

Please award the prizes according to their relative merits as practical articles, and forward your report at your earliest convenience.

W. B. Roberts.

To the Publisher of the N. Y. Dental Journal.

Your committee, to whom were referred the essays upon the subject of '*taking impressions*,' for the purpose of awarding the prizes offered in the last number of your Journal report as follows:—

After carefully examining the articles placed in our hands, and marked 1, 2, 3, etc., we have decided that, in our opinion, the one numbered 1 is the best practical article of those which we have examined. That numbered 4 we consider the second best.

We therefore award to the writer of article No. 1 the first prize of *six silver impression cups*, as offered in your last number, and to the writer of No. 4. the second prize of *three silver impression cups.*

The article marked No. 2, possesses many good points, and may be considered worthy of publication.

We would suggest for the usefulness of the articles, and for the convenience of your committee, that all articles offered in competition for the prizes, should be in as condensed a form as possible, since the longest articles are not by any means always the most practical or the best.

JOHN ALLEN,
H. CRANE,
NORMAN KINGSLEY, } *Committee.*
GEORGE SMILLIE,
A. L. NORTHROP,

In reference to the above *Report*, we would say, that on referring to our notes, we find the article marked No. 1, to have been written by Dr. C. M. FORBES, of *St. Louis, Mo.*, and that marked No. 4, by Dr. GEORGE T. BARKER, of *Philadelphia, Pa.* The one marked No. 2, was written by T. PAYNE, of *Bloomington, Ill.* From the fact of the little time given to the competitors, all the articles bear evidence of haste in construction; as we shall in future give ample time for composition, we have no fear but that all our essays will be written in such manner as to ensure the approbation of our readers.

W. B. ROBERTS.

INDEX.

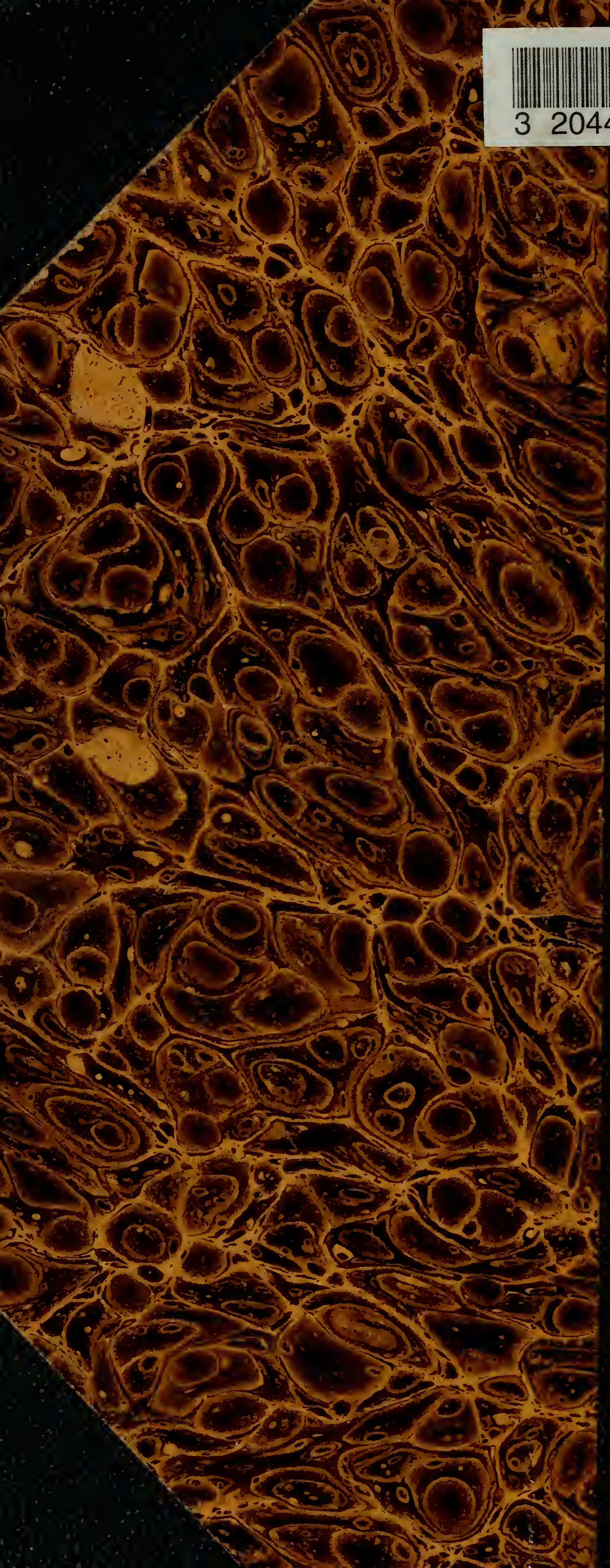
PAGE

- Allen, John. Artificial dentures 194
- Anæsthetic agency. Report to State Medical Society 238
- Barker, George T. On taking impressions 208
- Bibliotheca Odontalogica 6
- Calvert, Prof. W. Selection and arrangement of teeth 234
- Castle, A. C., M. D. Notes for a memoir on the pathology of dento-neuralgia 16
- Dental associations and their uses 14
- Dental profession, condition of in New York 131
- Dental science, the recent advances of 67
- Editorials and items. Stoddard's moulding flask, *cut* 62
  - Question settled 63
  - Am. Institute report 64
  - Experience with a new set of teeth 65
  - Letter from John T. Toland 109
  - Hypnotic Anæsthesia 113
  - Galvano-cautery applied to dentistry 114
  - Mastodon's jaw "
  - Dental phenomenon "
  - Books received 115
  - Tooth-drawing in Spain "
  - Remarkable case of strong jaws "
  - Hunter memorial 116
  - Dr. Stone's Arkansas burnishers 120
  - Nerve-extractors 121
  - Haas' duct-compressor "
  - Parafina impressions "
  - Society of Dental Surgeons of the city of New York 122
  - Obituary. Alvan Blakesly 125
  - Luther's comic advertisement 127
  - Pathology of the gums "
  - American Dental Convention 201
  - New York City Dental Society 202
  - National Dental Association "
  - New York State Dental Society 203
  - Am. Hard Rubber Co. *vs.* John T. Toland "
  - Obituary. Chapin A. Harris 250
  - Harris testimonial 252
  - Obituary. Rembrandt Peale 255
  - Buckingham on contraction of zinc 265
  - Report of committee on prize essays 266
  - Prof. James Harley 262
  - Society of German Dentists 263

PAGE

- Forbes, C. M. Taking impressions 225
- Franklin, Dr. B. W. Vulcanite rubber base, *cuts* 8
- Franklin, B. W. Gas and alcohol regulating lancet, *cut* 58
- Franklin, B. W. Letter on dental patents 59
- Franklin, B. W. Steel 141
- Glance at the history and progress of the dental science, from the earliest period to the present time 5
- Larchar, A. B. Arrangement of artificial teeth 24
- Lovejoy, Wm. H., M. D. Ranula 26
- McClure, J. B. Letter 226
- McKenney's alcohol lamp, *cut* 229
- Metropolitan school of dental science 29
- Payne, I. Taking impressions 212
- Perine, Geo. H. Notes 135
- Perine, Geo. H. Western Dental Society 248
- Prize essays, on our 205
- Radzinsky, Dr. L. D. On necrosis of the maxillary bones, *cuts* 90
- Radzinsky, L. D. Anæsthesia; or, ether and chloroform as they ought to be used by the dental profession 137
- Radzinsky, L. D., M. D. How to remove amalgum fillings, *cut* 227
- REPORTS OF SOCIETIES. Michigan Dental Association 48
  - Indiana State Dental Association 50
  - American Delegate Convention 143
  - American Dental Convention 166
  - Society of German Dentists 262
- Roberts, W. B. Improvement in vulcanizing machines, *cuts* 229
- Roberts, W. B. Artistic dentistry 233
- Sill, C. A new method of making metallic casts 61
- Sneed, N. M. Dentistry in Memphis 99
- State of dentistry in 1860. ["VULCANITE."] 101
- Warren, J. Mason, D. D. Case of removal of half of the lower jaw. [*Boston Medical and Surgical Journal*]. 27
- White, T. A. The effect that decayed teeth and the loss of them have on the general health of the system, and how to preserve them 55

19ed
267



3 2044 103 099 156